210751

PUBLIC VERSION
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BEFORE THE
SURFACE TRANSPORTATION BOARD



OTTER TAIL POWER COMPANY	)	
	)	**Docket No. 42071**
Complainant,	)	
	)	
v.	)	
	)	
THE BURLINGTON NORTHERN AND SANTA FE RAILWAY COMPANY,	)	
	)	
Defendant.	)	

COMPLAINANT'S REBUTTAL EVIDENCE

VOLUME I - NARRATIVE DISCUSSION
1 of 2

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Office of Proceedings ENTERED
APR 30 2004
Part of Public Record

April 29, 2004

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I
SUMMARY AND ARGUMENT

PART I

COUNSEL'S ARGUMENT AND SUMMARY OF EVIDENCE

In accordance with the procedural schedule established in this case by the March 29, 2004 order of the Surface Transportation Board ("STB" or "Board"), Complainant, Otter Tail Power Company ("OTP"),[1] hereby submits its Rebuttal Evidence and Argument in response to the Reply Evidence, submitted on October 8, 2003 ("BNSF Reply"), and the Supplemental Reply Evidence ("BNSF Supp. Reply"), submitted on March 22, 2004, by the Defendant, The Burlington Northern and Santa Fe Railway Company ("BNSF"). This submission adheres to the format prescribed in the Board's March 12, 2001 decision in STB Ex Parte No. 347 (Sub-No. 3), General Procedures for Presenting Evidence in Stand-Alone Rate Cases ("General Procedures").

A. INTRODUCTION AND OVERVIEW

In this proceeding, OTP has challenged the common carrier rates published by BNSF in BNSF's Common Carrier Pricing Authority No. BNSF 90062, and supplements thereto,[2] for the transportation of coal in unit trains from thirteen mines[3] in the Powder River Basin of Wyoming ("PRB") to the Big Stone Generating Station ("Big Stone"), near Big Stone, South Dakota. In its Opening Evidence ("OTP Opening"), OTP presented evidence of BNSF's quantitative and qualitative market dominance over the Big Stone coal movement and presented evidence of a maximum reasonable rate for this transportation using the Stand-Alone Cost ("SAC") constraint of Constrained

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[1] OTP is the Operating Agent for the Big Stone Generating Station, which OTP co-owns with MDU Resources Group, Inc. and Northwestern Energy (formerly Northwestern Public Service Company). As the Operating Agent, OTP is prosecuting this Complaint on behalf of all three co-owners.

[2] See OTP Opening Exhibits I-A-1 and I-A-2 and OTP Rebuttal Exhibit I-A-11.

[3] The thirteen mines are Buckskin, Rawhide, Eagle Butte, Dry Fork, Fort Union, Clovis Point, Caballo, Belle Ayr, Caballo Rojo, Cordero, Coal Creek, Jacobs Ranch, and Black Thunder.

Market Pricing ("CMP"), as adopted in Coal Rate Guidelines, Nationwide.[4] In its Reply Evidence ("OTP Reply"), OTP responded to BNSF's Opening Evidence ("BNSF Opening") on its variable cost of providing rail service to the Big Stone Station. Subsequently, both parties filed supplemental evidence in which they modified the traffic volumes and cross-over revenue divisions in their SAC presentations. OTP's Rebuttal Evidence addresses both BNSF's Reply and Supplemental Reply Evidence on the variable cost of service and BNSF's Reply and Supplemental Reply Evidence on OTP's Opening and Supplemental Opening Evidence on Stand-Alone Costs.

1. **Procedural and Evidentiary Background.**

Because the submission of evidence in this case has deviated from the usual procedures for SAC cases, a brief overview of the procedural history is appropriate. To date, the parties have submitted evidence in the following sequence: (1) BNSF and OTP Opening Evidence on June 13, 2003; (2) OTP Opening Errata on July 14, 2003; (3) BNSF and OTP Reply Evidence on October 8, 2003; (3) OTP Supplemental Opening Evidence on January 9, 2004; (4) BNSF Reply Errata on March 22, 2004; and (5) BNSF Supplemental Reply Evidence on March 22, 2004.

Through the filing of Reply Evidence on October 8, 2003, the parties' evidentiary submissions followed the Board's usual procedures in both format and content. The Board, however, subsequently granted OTP and BNSF permission to submit supplemental evidence in decisions issued on November 21, 2003 and February 19, 2004, respectively, in order "to address new issues raised by recent decisions."

OTP presented its Supplemental Opening Evidence ("OTP Supp. Op.") as an alternative to,

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[4] 1 I.C.C. 2d 520 (1985), aff'd sub nom. Consolidated Rail Corp. v. U.S., 812 F. 2d 1444 (3d Cir. 1987) ("Coal Rate Guidelines").

not a substitute for, its Opening Evidence stand-alone railroad ("SARR"), which remains OTP's primary case.[5] The purpose of OTP's supplemental evidence was to modify its opening SAC evidence in response to the Board's adoption of the Modified Straight Mileage Prorate ("MSP") methodology in Duke/NS.[6] In its Opening, OTP had used actual BNSF divisions to develop a market-based algorithm to determine revenue divisions for cross-over traffic, based upon ten years of precedent stating that actual divisions are the best evidence of appropriate divisions for cross-over traffic.[7] When the Board abruptly departed from that precedent in Duke/NS by stating that actual divisions are not particularly instructive,[8] OTP was prejudiced because it had designed its SARR and selected its traffic group according to a standard to which the Board no longer adhered. Moreover, OTP's market-based algorithm had required OTP to omit a substantial volume of cross-over traffic from the SARR that it otherwise would not have omitted under the MSP methodology.[9] OTP's Supplemental Evidence mitigated this prejudice by adding the omitted traffic to its Opening Evidence traffic base and by recalculating cross-over revenue for all of OTP's Opening traffic using the MSP methodology.

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5 OTP Supp. Op. at I-3.

6 Duke Energy Corp. v. Norfolk Southern Ry. Co., STB Docket No. 42069 (served Nov. 6, 2003) ("Duke/NS"). In Duke/NS, the Board modified the Modified Mileage Prorate ("MMP") method, which it then labeled the MSP method. In its Opening Evidence, OTP used the MMP method to allocate cross-over revenue on certain non-coal traffic, since the MSP method did not exist at the time. Although OTP has used the MSP method in its alternative case in its Supplemental Opening Evidence, it has continued to use MMP in its primary case Opening Evidence. The Board adopted MSP in order to remove incentives for complainants to "game" the MMP method by designing a SARR based on the MMP formula, rather than the fairest division between carriers. Id. at 22. However, "gaming" is not a concern in OTP's use of MMP for two reasons. First, because OTP used MMP only for overhead bridge traffic that was internally rerouted, OTP had no opportunity to manipulate the length of the SARR to take advantage of the MMP formula. Second, although OTP did have the opportunity to apply the MMP method in a manner most favorable to it, OTP elected to be conservative by applying the MMP in favor of BNSF. OTP Op. Ev. at III-A-22 to 23.

7 OTP Opening at III-A-17 through III-A-20.

8 Duke/NS at 20, note 29.

9 OTP Opening at III-A-19, note 24.

Throughout this proceeding, however, OTP has vigorously contested the Board's unexplained departure from precedent in Duke/NS, and it continues to do so in this Rebuttal, because the Board decided to alter course in *dicta* that had no impact on the outcome of that case.[10] Because the use of actual divisions to allocate cross-over revenues was not an issue squarely before the Board and was therefore not fully developed by the parties, OTP believes that the Board should reach a different conclusion on a fully-developed evidentiary record. Thus, OTP's Supplemental Evidence should be referenced only if the Board rejects OTP's market-based algorithm for allocating cross-over revenue.

As originally contemplated by the Board's November 21, 2003 order, OTP would file supplemental opening evidence, BNSF then would reply to OTP's supplemental evidence, and then both parties would submit final rebuttal evidence on all issues. However, by motion filed on February 6, 2004, BNSF also requested permission to submit new evidence of its own, as part of its reply to OTP's Supplemental Opening Evidence, in response to issues raised by the Board's recent decision in Duke/CSX.[11] The Board granted BNSF's request in its February 19, 2004 decision. In its Supplemental Reply Evidence, submitted on March 22, 2004, BNSF has reduced the traffic volumes on the SARR below the volumes that BNSF presented in its October 8, 2003 Reply Evidence, and presented a new DCF model, with new operating and investment cost evidence, based on the reduced traffic volumes.

OTP's Rebuttal Evidence now responds to BNSF's October 8, 2003 Reply Evidence and its March 22, 2004 Supplemental Reply Evidence. Because OTP has presented two alternative SARRs

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[10] See OTP's "Motion to Modify Procedural Schedule and Petition to Supplement the Evidentiary Record" at 5-6 (filed Nov. 10, 2003); OTP Supp. Reply at I-3; and Part III.A.3.c.iii. & vi., infra.

[11] Duke Energy Corp. v. CSX Transportation, Inc., STB Docket No. 42070 (served Feb. 4, 2004) ("Duke/CSX").

to handle two slightly different traffic bases (*i.e.* the primary case traffic is a subset of the alternative case traffic), this Rebuttal Evidence necessarily presents some evidence in parallel format. For example, investment and operating expenses are marginally greater for the Supplemental Evidence SARR because it handles additional traffic that the Opening Evidence SARR does not handle. Therefore, operating and investment units (*e.g.* number of locomotives, sidings, etc.) sometimes are different, although the unit prices remain constant between both SARRs. This Rebuttal Evidence therefore presents units, or quantities, for both the supplemental and opening SARRs, whenever they differ. In addition, this Rebuttal Evidence contains two alternative DCF analyses to reflect the different revenue, operating expenses, and investment costs of each SARR.

2. BNSF's Evidence Breaks the Bounds of Prior Practice and Precedent.

There is no dispute that BNSF possesses complete market dominance over the Big Stone movement. BNSF conceded quantitative market dominance in its opening evidence when it calculated R/VC ratios for the issue traffic well above the 180% jurisdictional threshold.[12] In its reply evidence, BNSF also has conceded qualitative market dominance.[13] Thus, the principle issues that remain to be resolved by the Board are the determination of the precise jurisdictional threshold rate, based upon BNSF's variable costs, and a SAC rate. In each of these areas, as well as in the calculation of stand-alone costs, BNSF apparently has made a conscious decision to present a position that breaks the bounds of prior practice and precedent. Through its aggressive over-reaching, BNSF apparently is attempting to convince the Board to "split the different" between the parties at a point

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12 BNSF Opening at I-2 and Ex. II-A-1.

13 BNSF Reply at II-65.

well in excess of levels that the Board has decided in numerous past cases. The Board should strongly reject this approach and should adhere to its prior precedent.

a. BNSF's default to system average costs is an improper attempt to push the calculation of variable costs far above the true cost of service, thus improperly increasing the jurisdictional threshold.

BNSF's variable cost evidence reflects a deliberate and disturbing strategy to push the calculation of its variable costs towards system average. The Board long has permitted, and in fact encouraged, movement-specific adjustments to system average costs "[b]ecause a carrier's systemwide average costs are not necessarily representative of the costs of providing a particular service . . . ."[14] The Board has concluded that such adjustments are particularly appropriate "to reflect the economies and efficiencies that are associated with high-volume, repetitive movements such as . . . unit train service."[15]

In this proceeding, however, BNSF has defaulted to system average costs in many cost categories where both the railroads and complainants historically have made movement-specific adjustments. It has done so either by attacking the reliability of its own cost and accounting data, which often is the same data that it has used to make movement-specific adjustments in past rate cases, or by asserting that it no longer maintains the data. It is no coincidence that BNSF's push for system average costs focuses on those costs with the greatest impact on total variable costs, namely, return on and depreciation of road property investment, maintenance-of-way, joint facilities, and

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[14] Minnesota Power, Inc. v. Duluth, Missabe & Iron Range Ry., STB Docket No. 42038, Slip op. at 3 (served March 6, 2000). See also, West Texas Utilities v. Burlington Northern R.R., 1 S.T.B. 638, 717 (1996) ("WTU"); Arizona Pub. Serv. Co. v. The Atchison, Topeka and Santa Fe Ry., 2 S.T.B. 367, 422 (1997) ("APS").

[15] Texas Municipal Power Agency v. The Burlington Northern and Santa Fe Ry. Co., STB Docket No. 42056, Slip op. at 3 (served Feb. 9, 2001) ("TMPA"). See also, PPL Montana, LLC v. The Burlington Northern and Santa Fe Ry. Co., STB Docket No. 42054, Slip op. at n.8 (served Nov. 9, 2000); FMC Wyoming Corp. v. Union Pacific R.R. Co., STB Docket No. 42022, Slip Op. at 48 (served May 12, 2000) ("FMC").

locomotive maintenance. In each of these cost categories, BNSF has alleged that it lacks either adequate or reliable line and movement-specific data. Thus, by undermining its own data, BNSF attempts to force the Board to default to system average costs.

BNSF's assault upon its own cost and accounting data should not be credited by the Board. In essence, BNSF is asking the Board to believe that BNSF has become less cost-conscious and has adopted inferior record-keeping practices over the past decade. It simply is inconceivable that one of the largest railroads in the nation, in its strive towards revenue adequacy, does not keep track of how or where it spends its money. If anything, it is reasonable to assume that technology has enabled BNSF to keep better track of such expenses today than in the past. Furthermore, since BNSF is responsible for maintaining its cost and accounting systems, the onus should be on BNSF to demonstrate that its cost and accounting data are not reliable, not upon OTP to demonstrate that the data are reliable.

b. <u>BNSF's SAC costs far exceed Board precedent.</u>

In recent rate cases, there has been a trend for the parties to take extreme positions in their SAC presentations and to drift further and further apart. OTP began this proceeding mindful of this trend and of the Board's admonition not to relitigate settled issues. As a result, OTP has gone to great lengths to present a SAC analysis that adheres to past precedent and does not engage in aggressive over-reaching. It has done this by designing a SARR, the Otter Tail Railroad ("OTRR"), that exhibits characteristics that are consistent with the most recent decisions involving SAC calculations for coal movements in unit trains from the Powder River Basin in Wyoming.

The best illustration of OTP's overall effort is to compare OTP's total SARR operating expenses and road investment with the total operating expenses and road investment adopted by the

Board in recent SAC decisions. OTP has made this comparison in Tables I-A-1 and I-A-2, below.

Table I-A-1
Comparison of SAC Case Construction Costs

Case	Construction Costs per Track Mile	Total Track Miles	Road Property Investment	Citation
OTRR (OTPRebuttal)	$1.45 million	1,780.9	$2.589 billion	OTP Rebuttal Exhibit III-H-3SP, Workpaper "OTRRConstruction Rebuttal.xls"
OTRR (BNSF Reply)	$2.584 million	1,767.6	$4.567 billion	BNSF Reply at III.B And Exhibit III-H-1
McCarty	$0.773 million	6,215	$4.807 billion	2 STB at 490, 501
WTU	$1.216 million	1,567.92	$1.907 billion	1 STB at 683, 701
APS	$1.329 million	116.2	$154.4 million	2 STB at 398-399
FMC	$1.399 million	approx. 6000	$8.393 billion	Slip op. at 39-40, 109
WPL	$1.594 million	1,819.3	$2.9 billion	Slip op. at 62, 74
TMPA	$1.701 million	2,408	$4.097 billion	Slip op. at 68, 70, 111

Table I-A-2
Comparison of SAC Case Operating Expenses [16]

Case	Operating Expenses per Ton-mile	Operating Expenses	Total SARR Tons	Average Miles per Haul	Citation
OTRR (OTP Rebuttal)	$0.0050	$241.9 million	201.53 million	241.8	Reb Exhibit III.A-11 Exhibit III-H-1
OTRR (BNSF Reply)	$0.0082	$409.4 million	133.49 million	374.6	Reply Exhibit III.H-1, Reply III-A-3
WTU	$0.00473	$142.23 million	46.31 million	649.3 (estimate)	1 STB at 658 and 690
WPL	$.00435	$429.57 million	145.14 million	680.39 (estimate)	Slip op. at 15 and 71
TMPA	$0.00356	$412.16 million	178.57 million	647.6	Slip op. at 26 and 78

[16] Table I-A-2 compares fewer cases than Table I-A-1 due to the inability to calculate average miles per haul from the record in some cases.

OTP's Rebuttal Evidence produces a SAC railroad which has investment of approximately $1.45 million per track mile, and operating costs of approximately 5.0 mills per net ton mile. In the most recent western coal case, TMPA, in which BNSF was the defendant, the Board found that the SARR had an investment cost of $1.7 million per track mile and operating costs of approximately 3.6 mills per net ton mile. Similarly, in WPL,[17] the immediately-preceding Western case to TMPA, the Board found that the SAC railroad had an investment cost of $1.6 million per track mile and an operating cost of approximately 4.3 mills per net ton mile. Thus, OTP's evidence closely conforms to current agency precedent.

In contrast, BNSF's SAC evidence goes to unprecedented extremes by aggressively overstating the OTRR's operating expenses and investment. BNSF's Reply and Supplemental Reply Evidence in this case calculate an investment cost for the OTRR of nearly $2.6 million per track mile or approximately *$1 million higher* than what the Board has found in the two most recent western coal cases. Moreover, BNSF's investment costs are much more comparable to the investment costs adopted by the Board in the three recent eastern cases, where the Board noted that the "relative expense to build transportation projects in the mountainous areas of the Eastern United States compared to projects located primarily in less mountainous areas of the West may have been a factor in this case."[18] BNSF also advocates an operating cost of 8.2 mills per net ton mile, or more than *double* what the Board has found in recent Western cases. The Board has decided nearly a dozen Western rate cases in the past decade that replicate lines out of the PRB to utilities in the west, southwest, midwest, and upper midwest, and is now well schooled in the costs of building such lines.

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[17] Wisconsin Power and Light Company v. Union Pacific Railroad Company, STB Docket No. 42051, Slip op. served September 13, 2001 ("WPL")

[18] Duke/NS at 8.

A consistent level of investment has emerged from those decisions, which BNSF's version of the OTRR greatly exceeds without justification.

It is inconceivable that this difference is attributable to substantially higher costs on the OTRR compared to these other stand-alone railroads. Rather, the more probable explanation is that BNSF hopes the Board will "split the difference" between its evidence and OTP's evidence, which gives BNSF every incentive to game the process by inflating the OTRR's operating expenses and road investment and to erode the OTRR's traffic and revenue base. BNSF's tactic flies directly in the face of the Board's admonition in its March 12, 2001 decision in General Procedures that "the parties to SAC cases are cautioned not to attempt to relitigate issues that have been resolved in prior cases. Unless new evidence or different arguments are presented, we will adhere to precedent established in prior cases."[19] As discussed a number of times in this Rebuttal Evidence, BNSF, in both its Reply and Supplemental Reply Evidence, has simply submitted evidence and repeated arguments submitted and rejected in prior cases.

B. BNSF'S REVENUE INADEQUACY DOES NOT DICTATE THE LEVEL OF A REASONABLE RATE UNDER THE AGENCY'S CONSTRAINED MARKET PRICING METHODOLOGY.

BNSF's Reply Evidence continues the theme of its Opening Evidence that OTP's complaint should be resolved on the basis of BNSF's revenue adequacy. The essence of this theme is that, because BNSF is revenue inadequate and OTP's demand for coal at Big Stone is inelastic, BNSF's rates should not be found unreasonable. OTP thoroughly rebutted BNSF's revenue adequacy theme at pages I-8 to I-21 of its Reply Evidence and will not repeat those arguments here.

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[19] General Procedures, slip op. at 6.

In its Reply Evidence, however, BNSF employs its revenue adequacy theme to challenge OTP's opening evidence that the appropriate SAC rate is below the jurisdictional threshold rate. Specifically, BNSF argues:

> it would be contrary to the policies of differential pricing and revenue adequacy for the Board to convert the jurisdictional floor into a maximum rate cap. If application of the SAC test prevents BNSF from charging a shipper like Otter Tail rates that significantly exceed the jurisdictional threshold, then the regulatory standard is being applied in a manner inconsistent with the policies that led to its adoption. BNSF must be able to charge demand inelastic shippers like Otter Tail rates that significantly exceed the jurisdictional threshold if it is to have any meaningful opportunity to achieve revenue adequacy.

BNSF Reply at I-5.

This argument completely misses the point of the SAC constraint by making at least one, if not two, faulty assumptions. The argument assumes *either* that the relevant standard is BNSF's revenue needs, rather than the revenue needs of an efficient, least cost, competitor; *or* that an efficient, least cost, carrier can never be revenue adequate at a rate that is below the jurisdictional threshold. Neither assumption is true.

BNSF bases its assumptions solely upon the Board's most recent Revenue Shortfall Allocation Method ("RSAM") calculation, which determined that BNSF would need to earn average revenues between 213% and 289% of its variable cost on all traffic that generates revenue in excess of 180% in order to be revenue adequate.[20] As OTP demonstrated at pages I-13 to I-15 of its Reply Evidence, however, the RSAM is not an appropriate benchmark in a SAC case because it is a cruder method than CMP that focuses on the incumbent carrier's system-wide revenue adequacy and is just one of three R/VC benchmarks that the Board adopted as a "starting point" to determine the reasonableness

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[20] Rate Guidelines -- Non-Coal Proceedings, STB Ex Parte No. 347 (Sub-No. 2)(served April 21, 2003)

of non-coal rates when a CMP analysis is impractical. By contrast, the SAC test considers only the revenue needs of a least cost, optimally efficient, hypothetical replacement for the incumbent. BNSF's RSAM rate level, therefore, is wholly irrelevant.

Furthermore, BNSF has not demonstrated that the challenged rates are a reasonable exercise of differential pricing, although it concedes that this is a central issue in this proceeding.[21] As OTP demonstrated at pages I-17 to I-20 of its Reply Evidence, OTP pays substantially higher rates at Big Stone than other captive coal shippers. Indeed, the average R/VC ratio of other captive coal shippers on OTP's stand-alone railroad is compared to Big Stone's R/VC ratio of 2.83.[22] This fact proves that BNSF has not set the Big Stone rates in accord with demand elasticities and demonstrates that coal shippers with similar demand elasticities to Big Stone pay rates that are at or near the jurisdictional threshold.

Finally, the Board itself expressly has rejected BNSF's revenue adequacy theme:

> [A]lthough principles of differential pricing require carriers to assess higher markups on their captive traffic, the statute does not give carriers earning less than adequate revenues carte blanche to charge unreasonably high rates. While our rate policy should, and does, promote railroad revenue adequacy, we also have an affirmative duty to ensure that prices do not rise to unreasonable levels. "One statutory factor cannot be isolated out of context, or blindly exalted at the expense of others that are at least co-equal in importance . . . . The whole thrust of ratemaking under the [Interstate Commerce] Act is balancing." Public Service Co. Of Ind. v. ICC, 749 F. 2d 753, 765 (D.C. Cir. 1984). It is clear that, under the statute, "a rate may be unreasonable even if [charged by] a carrier [that] is far short of revenue adequacy." Coal Rate Guidelines, 1 I.C.C. 2d at 536-37.

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21 BNSF Reply at I-5.

22 OTP Reply at I-19.

Rate Guidelines -- Non-Coal Proceedings, Ex Parte No. 347 (Sub-No. 2), 1995 ICC Lexis 301, *21-22 (served Dec. 1995).

C. OTTER TAIL HAS PRESENTED A FEASIBLE STAND-ALONE RAILROAD TO PROVE THAT BNSF'S BIG STONE RATES ARE UNREASONABLE.

In its Opening Evidence, OTP presented a fully-supported SAC analysis to demonstrate that the rates in BNSF 90062 are unreasonable. BNSF, however, has mounted a multi-front assault not only on OTP's evidence, but on the Coal Rate Guidelines themselves. In sum, BNSF attempts to deprive the OTRR of millions of dollars in annual revenue; to inflate the OTRR's operating expenses on the basis of BNSF's less efficient operations; and to grossly exaggerate the necessary investment base.

1. BNSF Misrepresents the Facts and Board Precedent to Deprive the OTRR of Millions in Revenue.

BNSF's attempt to deprive the OTRR of as much revenue as possible takes four forms that break the bounds of both fact and precedent. First, BNSF attacks the OTRR's traffic group by seeking to exclude cross-over traffic from SAC cases altogether. Recognizing the utter fallacy of that argument in light of the Coal Rate Guidelines, BNSF falls back to a density-based method of allocating cross-over revenues that the Board has rejected in three prior cases, in place of the Board's long-utilized mileage prorate methods, in order to deprive the OTRR of as much cross-over revenue as possible. Second, BNSF flys in the face of both fact and precedent by redefining the "issue traffic" in order to eliminate over 54 million tons of coal from the OTRR (84 million tons from OTP's alternative case). Third, BNSF arbitrarily substitutes ton-miles for OTP's use of train-miles for the selection of cross-over traffic, in an effort to exclude 10.1 million tons of coal, and then contends that

OTP failed to adhere to its own traffic selection methodology.[23] Finally, BNSF attempts to eliminate all of OTP's rerouted general freight traffic between Fargo and Snowden by manipulating OTP's evidence to make it appear as if the OTRR provides a lesser quality service than BNSF and by applying an off-SARR rerouting standard to OTP's on-SARR reroutes. Each of these arguments is baseless and should be rejected by the Board.

a. A Complainant's Ability to Group Traffic, Including Cross-Over Traffic, on its SARR is Fundamental to the Coal Rate Guidelines.

In its Reply, BNSF argues that the Board should reverse its long-established policy and precedent of permitting complainants to utilize "cross-over traffic" in a SAC presentation.[24] The Board reaffirmed this policy most recently in TMPA, less than three months prior to the filing of opening evidence in this proceeding, where the Board unequivocally stated "[i]t is well established that a SAC presentation may include cross-over traffic . . . ."[25] BNSF, however, flies directly in the face of both policy and precedent by claiming that the inclusion of cross-over traffic is contrary to the underlying principles of SAC. BNSF relies solely on the theoretical musings of its witness, Professor Janusz Ordover, and completely fails to present any factual evidence to demonstrate that those theories are accurate or applicable in this case.

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[23] In its Reply Evidence at III.A-24 to III.A-32, BNSF actually excludes 14.4 million tons of coal. In Part III.A.1.c.i., infra, OTP agrees that BNSF has correctly excluded 4.3 million of these tons. However, in its Supplemental Reply Evidence at III.A-3, BNSF correctly restores *all* 14.4 million tons to the OTRR for the purpose of analyzing OTP's Supplemental Opening Evidence, which presents OTP's alternative SARR. The significance of these bilateral concessions is as follows: (1) If the Board *rejects* OTP's regression algorithm for the allocation of cross-over revenue, both parties agree that *all* 14.4 million tons should be included on the OTRR; but (2) If the Board *accepts* OTP's regression algorithm, OTP believes that the Board should exclude only 4.3 million tons, while BNSF argues that the Board should exclude all 14.4 million tons.

[24] BNSF Reply at I-12 to I-13; III.A-6 to III.A-19.

[25] TMPA at 17. An even more recent affirmation of grouping and cross-over traffic is found in Arizona Public Service Company and Pacific Corp. v. The Burlington Northern and Santa Fe Railway Company, STB Docket No. 42077, served May 12, 2003.

In Section III.A.1.a. of this Rebuttal, and in the accompanying Statement of Dr. George Borts,[26] Otter Tail rebuts the policy and theoretical arguments raised by BNSF and Professor Ordover, in support of their quest to eliminate cross-over traffic. This evidence demonstrates, among other things, that elimination of cross-over traffic would be fundamentally inconsistent with the underlying premise that stand-alone costing occurs in an environment free of entry and exit barriers.

The Coal Rate Guidelines were painstakingly developed to strike a workable balance between the statutory directives to protect captive shippers from monopoly rates and to assist the railroads to achieve revenue adequacy. A crucial component of that balance was to grant complaining shippers broad flexibility to develop the least cost, most efficient, hypothetical competitor to the incumbent railroad for the shipper's traffic. Thus,

> the [SARR] should be designed to minimize construction (or acquisition) and operating costs and/or maximize the carriage of profitable traffic. In selecting the route of a SAC railroad, for instance, an overriding factor may be the effort to lower costs by taking advantage of economies of density.

Coal Rate Guidelines at 544. Accordingly, the Interstate Commerce Commission ("ICC") stated that "the ability to group traffic of different shippers is *essential* to [the] theory of contestability."[27] As such, the ICC saw "no need for *any restrictions* on the traffic that may potentially be included in a stand-alone group."[28]

Consistent with this fundamental premise of the Coal Rate Guidelines, the ICC and the Board routinely have held that "excluding cross-over traffic 'would weaken the SAC test because it would

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26 OTP Rebuttal Ex. III-A-8.

27 Id. (emphasis added).

28 Id. (emphasis added).

deprive the SARR of the ability to take advantage of the same economies of scale, scope and density that the incumbents enjoy over the identical route of movement.'"[29] In Nevada Power II,[30] ICC Chairman McDonald elaborated on this point in a separate comment:

> The [Guidelines] also find that in designing a stand-alone railroad (SARR), it may be assumed that existing single-line traffic would become interline traffic that is passed on at hypothetical interchange points. Permitting this assumption, and thus crediting a SARR with so-called "cross-over traffic" will allow shippers to make effective cases before the Commission using smaller hypothetical SARRs than would otherwise be required. Viewing a SARR's interline rail partners simply as additional customers of the SARR means that the captive shipper is not required to ensure that far-flung rail lines are earning their full replacement cost of capital. Of course, we do need to make the most reasonable possible estimates of the volumes that a SARR would attract from all sources over the period of the analysis, and I believe our method does that.

Id. at 280 (Concurrence of Chairman McDonald) (emphasis in original). The inclusion of "cross-over" traffic, therefore, is a critical aspect of SAC policy and theory.

The thinly veiled premise underlying each of BNSF's arguments to eliminate cross-over traffic is revenue adequacy. Because it is not revenue adequate, BNSF contends that there is no excess revenue from cross-over traffic to distribute to the SARR. OTP, in its Reply Evidence at I-8 to 16 and in Part I.B., supra, has demonstrated the irrelevance of BNSF's system-wide revenue inadequacy. In addition, however, BNSF's revenue inadequacy premise blatantly violates the theory of contestability, which, along with Ramsey Pricing, are the pillars of CMP and SAC.

No railroad is responsible for ensuring the revenue adequacy of any other railroad. If this were true, no railroad ever would interline traffic with any other railroad, since they all are revenue

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29 TMPA at 17.

30 Bituminous Coal-Hiawatha, Utah, to Moapa, Nevada, 10 I.C.C.2d 259 (1994) ("Nevada Power II").

inadequate. In reality, a railroad is not concerned with its interline partner's revenue adequacy, since it would be economically irrational to refuse to interline traffic as long as that traffic makes some contribution to both carriers' unattributable costs. Thus, to deprive the SARR of any cross-over revenues, unless and until the residual incumbent is revenue adequate, would be a barrier to entry that the incumbent railroad does not face today. This violates the theory of contestability.

The ICC rejected BNSF's revenue inadequacy premise long ago in Ex Parte No. 347 (Sub-No. 2), Rate Guidelines -- Non-Coal Proceedings, 1995 ICC Lexis 301, *17-18 (Dec. 1995) [footnotes omitted], when it rejected the AAR's Simplified SAC model:

> AAR-SSAC is inconsistent with CMP-SAC in two respects, as a result of which it appears to distort the results in favor of the railroads. First, . . .
>
> * * *
>
> Second, AAR-SSAC appears to be inconsistent with CMP-SAC because it does not permit the inclusion of, and hence cost sharing with, other traffic unless that traffic covers not only its own attributable costs but also a full pro rata share of the joint and common (unattributable) costs of every other line segment used by that traffic. The joint and common costs of these other line segments, however, are based on the existing infrastructure with no adjustment for excess capacity or other inefficiencies. By not excluding the costs of inefficiencies on those other lines, the program overstates the revenue requirements for those other lines and understates the potential revenue contribution from that traffic to the stand-alone system. This result is inconsistent with differential pricing principles. As a general rule, it is better for a railroad to carry any traffic that covers its (attributable) costs and makes any contribution (no matter how slight) to unattributable costs.

The Board noted that even the AAR's witness, Dr. William Baumol, acknowledged the legitimacy of concerns over the assignment of costs to non-issue traffic. Id., note 21.

At a Hearing in Ex Parte No. 347 (Sub-No. 2), held on March 30, 1994, the following exchange occurred between the ICC Commissioners and Dr. Baumol:

> CHAIRMAN McDONALD: For example, in that [1987] testimony you do allow for a pro rata cost allocation to take into account traffic that is not local to the final stand-alone railroad as a final adjustment to be made after the analysis has been taken to its desired level. Do you think such an adjustment is appropriate?
>
> PROF. BAUMOL: I think such an adjustment is appropriate, as I understand it.
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> * * *
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> PROF. BAUMOL: Yes, and the big problem which I think you have just hit on . . . is the problem of traffic from elsewhere that is using the line, the traffic that was discussed earlier. I'm quite sure, though believe me I have not read my old testimony since I wrote it, the problem there is that because much of that traffic itself is not providing adequate revenues, there is no contribution available to be extracted from it to enter into reduction of the stand-alone cost for the origin-destination railroad.
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> * * *
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> COMMISSIONER SIMMONS: That's what bothers me. That bridge traffic that Jim Hagen [Conrail CEO] brings from wherever and bridge traffic that Mr. Grinstein [BN CEO] brings, they recover -- their simplified stand-alone cost seems to favor them vis-a-vis the main line.
>
> PROF. BAUMOL: I think that's a legitimate concern.

Hearing Transcript at 70-73.[31] From this exchange, three things are clear. First and foremost, Dr. Baumol himself agreed that cross-over traffic is properly included in a SAC analysis. Second, Dr. Baumol agreed that it is problematic to require cross-over traffic to cover its fully allocated costs before it may make any revenue contribution to the SARR. Third, the Board disfavored any revenue sharing methodology that favors the railroads based on their revenue inadequacy. Yet, BNSF and Dr. Ordover have taken precisely the opposite position on all three issues.

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[31] OTP Rebuttal Workpapers, Vol. III, p. 5051, pp. 5120-23.

In a concession to the Board's unwillingness to bar cross-over traffic altogether, BNSF urges several limitations on complainants' use of such traffic. None of those limitations, however, are justified by precedent or policy, for the same reasons that cross-over traffic is essential to contestability. In the end, therefore, BNSF finally retreats to its proposed DARA methodology for allocating the revenues from cross-over traffic. The flaws with that methodology are discussed further at Parts I.C.1.d.iv and III.A.3.c.ii., infra.

Thus, in its efforts to exclude cross-over traffic, BNSF not only has taken a position contrary to precedent and policy, but it has also taken a position contrary to that of Dr. Baumol, the railroads' principal witness on the application of CMP and the SAC constraint.

b. BNSF Wrongly Excludes Coal from Southern PRB Mines Moving South Through Converse.

BNSF wrongly excludes over 54 million tons of coal traffic (84 million from OTP's alternative case) that originates at southern PRB mines, beginning at Cordero, and moves south to Converse, where the OTRR interchanges the traffic with the residual BNSF. BNSF excludes this traffic because it *allegedly* does not share facilities with the issue traffic. But, as demonstrated below and in Part III.A.1.b., infra, BNSF is wrong both factually, because this traffic does share facilities with the issue traffic, and legally, because there is no requirement that cross-over traffic share facilities with the issue traffic.

i. BNSF has mis-identified the issue traffic.

As a factual matter, BNSF has mis-identified the issue traffic.[32] BNSF erroneously assumes that the issue traffic includes only coal from the Belle Ayr and Eagle Butte Mines because those mines have been the primary source of coal for Big Stone since January 1, 2002, when BNSF 90062 became

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[32] See Part III.A.1.b.i., infra.

effective.[33] But, OTP's coal supply agreement expires on

), after which OTP may purchase coal from any of the other PRB Mines.[34] OTP requested common carrier rates to the Big Stone Station from *all* PRB origins served by BNSF, and BNSF responded by publishing a single rate from *all* such origins in BNSF 90062.[35] OTP's complaint challenges the rate published in BNSF 90062, which includes all of the southern PRB mines. Thus, the issue traffic includes coal from all origins identified in BNSF 90062 destined to the Big Stone Station. This means that all of the southbound coal traffic that originates from the Cordero Mine, and mines south of Cordero, *does share* facilities with the issue traffic.

Since 1988, OTP in fact has purchased coal for the Big Stone Station from eight different PRB mines. Indeed, OTP purchased coal from one of the most southern mines on the OTRR, Black Thunder, as recently as October 2003.[36] OTP's Complaint requests a reasonable rate from all BNSF-served PRB mines and OTP has designed the OTRR to produce a stand-alone rate for all such mines. Thus, there is no factual basis for BNSF's assertion that southbound coal traffic that originates from the Cordero Mine and mines south of Cordero does not share facilities with the issue traffic.

The Board's decision in TMPA confirms that the issue traffic is defined by all origins covered by the challenged tariff rate, regardless whether any coal has moved under that rate. In that case, TMPA had challenged the rate in Common Carrier Pricing Authority BNSF-90042 from four

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[33] BNSF concedes that OTP also tendered lesser amounts of coal at the Cordero and Caballo Rojo Mines in the fourth quarter of 2002, which apparently is why BNSF has chosen the Cordero Mine as the demarcation point for determining what southbound PRB coal traffic shares facilities with the issue traffic.

[34] OTP Opening Exhibit I-A-6.

[35] OTP Opening Exhibits I-A-7 and I-A-1, respectively.

[36] OTP Rebuttal Workpapers at Vol. III, p. 5137. Thus, in order to award reparations, the Board must determine a maximum reasonable rate for Black Thunder, which means that coal from Black Thunder is issue traffic that shares facilities with all of the coal that BNSF contends should be excluded.

different PRB origins. The Board, however, concluded that it lacked sufficient data to determine the variable costs of the movement from two of the origins, since no coal had originated at those mines under the challenged rate before the record was developed in the case.[37] Nevertheless, the Board held:

> If TMPA should originate coal from either...mine in the future, the parties should use the procedures and findings in Appendix A to calculate the variable costs associated with serving these mines so as to determine whether that service is subject to our rate regulation and our rate prescription.

TMPA at 10. The Board's decision to apply its TMPA rate prescription to the mines in the tariff from which TMPA had not yet originated any coal, as long as such traffic was within the Board's jurisdiction, is unequivocal confirmation that such origins are included within the definition of the issue traffic.

ii. SAC principles do not exclude traffic from the SARR that does not share facilities with the issue traffic.

Even assuming, *arguendo*, that all southbound traffic from Cordero and mines south does not share facilities with the issue traffic, that alone would not provide any basis to exclude this traffic. BNSF asserts, without any citation, that "It is a clear violation of SAC traffic grouping principles to include traffic in the SARR traffic group that does not and would not share any facilities with the issue traffic."[38] BNSF expanded upon this assertion in its Supplemental Reply Evidence at III.A-9:

> The southbound traffic that BNSF would exclude can be thought of as "second order cross-over traffic" or "cross-over on cross-over traffic." There is no basis in SAC principles for a complainant to extend the cross-over stratagem so as to include in the SAC shipper group traffic that has no direct nexus with issue traffic facilities.

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[37] TMPA at 10 and 38. Similarly, coal moved from the Black Thunder Mine, the southern most mine on the OTRR, to Big Stone in October 2003, which is after OTP filed its opening and reply evidence.

[38] BNSF Reply at I-6.

Neither the Board nor the ICC ever has reached this conclusion, which itself is contrary to fundamental SAC principles.

BNSF apparently relies on select phrases from PPL II[39] that BNSF has taken completely out of context.[40] Specifically, BNSF misrepresents the phrase in PPL II, at 7, that "A shipper should not seek to have its rate reduced by shifting any part of the costs of the lines or facilities that it needs onto traffic that does not use those lines or facilities," to mean that a SARR must be limited to traffic that shares facilities with the issue traffic. These are not identical concepts, and when read in context, it is clear that the Board was not addressing the latter concept at all. In PPL II, the Board excluded *unattributable* costs from its cross-subsidy analysis, and looked only at whether the revenues generated by traffic on the western segment of the SARR were sufficient to cover costs *not shared* by shippers only using the north-south part of the SARR.[41] Thus, it is clear that the shifting of costs, in the sentence quoted by BNSF, refers to *attributable* costs. Applying the PPL II analysis to the OTRR, using Cordero as the demarcation point, shows that there is no such cross-subsidy of the OTRR north of Cordero by traffic that transits only OTRR lines south of Cordero.[42] These facts belie BNSF's conclusion that the Board intended to limit a SARR to traffic that shares facilities with the issue traffic.

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39 PPL Montana, LLC v. The Burlington Northern and Santa Fe Ry. Co., STB Docket No. 42054, Slip Op. (served March 24, 2003) ("PPL II").

40 BNSF Reply at III-A-21.

41 PPL II at 7.

42 OTP Opening at III-A-26-28. Although OTP used Campbell as its demarcation point, shifting the point further south to Cordero only adds more traffic to the northern segment of the OTRR, which ensures an even stronger conclusion. Furthermore, as OTP noted in its Opening Evidence at II-A-28, note 45, OTP has placed sufficient information in its Opening Evidence to enable the Board to determine if any other subsets of traffic meet the PPL cross-subsidy test.

In its recent Duke/CSX decision, the Board rejected similar arguments by CSX to exclude cross-over traffic that did not share facilities with the issue traffic. In that case, CSX argued, based on PPL, that including a 4-mile steel movement in the SAC analysis "would create an impermissible cross-subsidy, because that movement would share no facilities in common with the Duke coal traffic that is the subject of this rate complaint."[43] The Board rejected CSX's argument because:

> the steel plant would use not only the segment of track from Ashland to Russell, but the track segment from Fayette to Ashland used to bring coal to the plant. And the Ashland-to-Russell segment would not serve the steel traffic alone, but would also be used for coal traffic that clearly would share facilities in common with the Duke traffic that is at issue in this case. The Board is thus not persuaded that it is necessary or appropriate to differentiate between the inbound (coal) and outbound (steel) traffic of the steel plant for purposes of what should properly be included in the traffic group in this case.

Duke/CSX at 23.

The facts in this case are identical in all relevant respects to the facts in Duke/CSX. Coal from the PRB mines south of Cordero moves both north and south. The northbound coal traffic shares facilities with the Big Stone coal that originates at Belle Ayr and Eagle Butte (*i.e.*, in Duke/CSX, the Fayette to Ashland segment), but the southbound coal traffic does not (*i.e.*, in Duke/CSX, the Ashland to Russell segment). The southbound coal traffic, however, shares facilities with the northbound coal traffic, which in turn clearly shares facilities with the Big Stone traffic from Belle Ayr and Eagle Butte.[44] Thus, just as in Duke/CSX, "it is not necessary or appropriate to differentiate between" the northbound and southbound coal traffic from PRB mines south of Cordero, "for purposes of what should properly be included in the traffic group in this case."

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[43] Duke/CSX at 23.

[44] BNSF calls this second layer cross-over traffic. The Board never has distinguished cross-over traffic in this way, and OTP contends that any distinction is inappropriate for the reasons stated in this section.

BNSF's attempt to distinguish Duke/CSX is illogical. BNSF mistakenly summarizes the Board's decision as follows: "The Board concluded that since the SARR in that proceeding properly served the *inbound* needs of the steel plant, it would be appropriate for the shipper to use the SARR for its *outbound* needs."[45] The Board's decision, however, was not predicated on the distinction between inbound and outbound traffic. In fact, the Board expressly stated that it was inappropriate to differentiate between inbound and outbound traffic.[46] Similarly, it is inappropriate to differentiate between northbound and southbound coal traffic on the OTRR. The obvious point of the Board's conclusion is that so-called "second layer" cross-over traffic is not contrary to SAC principles.

Furthermore, there is a logical inconsistency between BNSF's attempt to limit a SARR to traffic that shares facilities with the issue traffic and its attempt to eliminate cross-over traffic altogether by requiring a complainant to construct all of the facilities needed to carry the cross-over traffic end-to-end. BNSF's argument to eliminate cross-over traffic is that "there is no way of identifying and eliminating the potential distortion created by use of cross-over traffic short of requiring the proponent of a stand-alone system to conduct the test properly by building all the facilities needed to carry its non-issue traffic end-to-end."[47] BNSF acknowledges that additional layers of cross-over traffic are associated with each extension of the SARR, and that, while the first layer of cross-over traffic shares facilities with the issue traffic, subsequent layers do not.[48] BNSF even concedes that a complainant may have little incentive to build a SARR to handle the first layer

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45 BNSF Supp. Reply at III.A-10 [emphasis in original].

46 Duke/CSX at 23.

47 BNSF Reply at III-A-12.

48 Id. at III-A-12, note 11.

of cross-over traffic, unless it also receives a share of the second layer net revenues, which could result in an ever-expanding SARR.[49] The clear implication of BNSF's argument is that a complainant *is entitled* to second layer revenues as long as it builds the facilities.[50] This result, however, is wholly inconsistent with BNSF's attempt to restrict a SARR to traffic that shares facilities with the issue traffic, since second layer cross-over traffic by definition never would share facilities with the issue traffic.

All of the southbound coal traffic from Cordero and mines south, which BNSF seeks to exclude from the OTRR because it allegedly does not share facilities with the issue traffic, constitutes second layer cross-over traffic, as defined by BNSF (but only if *arguendo* the Board accepts BNSF's flawed premise that the issue traffic in this proceeding reaches no further south than Cordero).[51] BNSF's exclusion of this traffic, therefore, is inconsistent with its recognition elsewhere in its Reply Evidence that a SARR indeed can benefit from second layer cross-over traffic revenues. Exclusion of southbound coal traffic that originates from the Cordero Mine and points south also is inequitable and contrary to SAC principles. BNSF agrees that northbound traffic from these same mines does share facilities with the issue traffic, and thus has properly been included in the OTRR traffic base. By limiting the OTRR only to traffic that shares facilities with the issue traffic, however, BNSF would deny the OTRR the contribution of southbound traffic revenues to the cost of facilities that the southbound coal traffic shares with the northbound coal traffic. Although BNSF recognizes this

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49 Id.

50 See BNSF Reply Ex. III-A-2,"Declaration of Janusz A. Ordover," at 32 (Mr. Ordover's statement that "there is nothing stopping the shipper from constructing the railroad that serves *at least* the first 'layer' of cross-over traffic," leaves no doubt that he believes a shipper also may include subsequent layers of cross-over traffic that do not share facilities with the issue traffic.).

51 See BNSF Supp. Reply at III.A-9.

problem in its argument to exclude cross-over traffic altogether, it makes no attempt to address the issue.[52]

BNSF understandably avoids the issue because it illustrates why a general prohibition against traffic that does not share facilities with the issue traffic (*e.g.* second layer cross-over traffic) is contrary to SAC principles. The ability to group traffic of different shippers is essential to the theory of contestability, which is a foundation of the SAC constraint.[53] But, BNSF would require a shipper to build its SARR to handle all cross-over traffic end-to-end, and then deny the SARR the benefit of second layer cross-over traffic (even if the shipper built the SARR to handle this traffic end-to-end) to share any of the costs, even though the defendant-railroad benefits from those revenues in the real world. By depriving the OTRR of revenues that are available to BNSF to offset the costs of facilities used by traffic that also shares facilities with the issue traffic, BNSF would render the OTRR less efficient than BNSF on the line segment south of Cordero. The unavailability of this traffic to the OTRR would create a barrier to entry that violates the theory of contestable markets.[54] As long as second layer cross-over traffic covers its attributable costs, such traffic properly may contribute to the costs of facilities it shares with the first layer cross-over traffic, better enabling first layer cross-over traffic to contribute to the costs of facilities it shares with the issue traffic in the same way such traffic contributes to the costs of the incumbent carrier over the same line segments.

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[52] BNSF Reply at III-A-12, note 11 ("The issue raised by the ever-expanding SARR network is how the proponent of a SARR can benefit from the existence of layer 2 cross-over traffic without building still more facilities.").

[53] Coal Rate Guidelines at 544.

[54] Nevada Power II at 266 ("A contestable market is one into which entry is absolutely free and exit absolutely costless, where the new entrant suffers no disadvantage relative to the incumbent.").

c. OTP Has Properly Rerouted General Freight Traffic Between Fargo and Snowden

OTP has properly rerouted general freight cross-over traffic from BNSF to the OTRR.[55] This is bridge traffic, in unit train or trainload service, that the residual BNSF will both originate and terminate at points beyond Fargo and Snowden. Currently, BNSF routes this traffic between Fargo and Snowden over its line across northern North Dakota via Minot. The OTRR includes all facilities needed to reroute this traffic over a line that interchanges with the current route of movement and that replicates BNSF's line across southern North Dakota from Fargo to Snowden via Glendive. Both the customary BNSF route and the OTRR reroute are depicted in OTP Rebuttal Exhibit I-A-9.

In the hypothetical SAC world, there are two types of reroutes: external ("off-SARR") and internal ("on-SARR"). An external, or off-SARR, reroute occurs when the SARR does not operate over all of the rerouted portion of the move, which consequently requires the residual incumbent to alter its handling of the traffic, thereby imposing additional costs upon the residual incumbent for which the complainant must account.[56] By contrast, an internal, or on-SARR, reroute interchanges the traffic with the residual incumbent directly at points where the traffic currently is handled by the incumbent, resulting in no change in the incumbent's handling of the traffic. Thus, an internal re-route poses no additional costs for the residual incumbent because the SARR has constructed and operates all of the facilities needed to take the rerouted traffic from, and bring the rerouted traffic to, the residual incumbent at points where the residual incumbent currently handles the traffic. An internal reroute is permissible, "so long as the new route is reasonable and would meet the shipper's

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55 See Part III.A.1.d.ii., infra.

56 TMPA at 22; Duke/NS at 26.

transportation needs."[57] Because OTP interchanges the rerouted general freight traffic with BNSF at both ends of the reroute on points along the customary BNSF route, it is an internal reroute that does not require the residual BNSF to alter its handling of the rerouted traffic. Thus, these internal reroutes are permissible if they satisfy the shippers' transportation needs.

BNSF has excluded all of the rerouted general freight traffic between Fargo and Snowden on two grounds. First, on the basis of the rebuttable presumption in Duke/NS that longer reroutes are less efficient, BNSF alleges that OTP's reroute is less efficient, and therefore will not satisfy the shippers' transportation needs, since OTP's reroute is longer than the customary route. Second, BNSF urges the Board to devise a *new* rerouting standard, based upon the Duke/CSX requirement that rerouted traffic already utilize lines replicated by the SARR, that would exclude all rerouted traffic that utilizes only a "minimal" portion of the customary routing of the traffic.

For the reasons presented above and in Part III.A.1.d.i. and ii., infra, OTP has rejected both of BNSF's arguments and, with one exception, has retained all of the rerouted general freight traffic on the OTRR because this rerouted general freight traffic meets all of the applicable standards for internal, or on-SARR, reroutes.

i. The OTRR reroute of general freight traffic between Fargo and Snowden meets or exceeds the shippers' transportation needs.

OTP's internal reroute of general freight traffic between Fargo and Snowden will meet or exceed the current service levels provided by BNSF, despite the slightly longer distance of the OTRR route.[58] In TMPA, the Board held that on-SARR reroutes are permissible "so long as the new route

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[57] TMPA at 21; See also Nevada Power II at 273.

[58] BNSF inaccurately portrays the reroute as a "26 percent increase in length" by focusing only on the additional distance of the reroute between Fargo and Snowden. BNSF Supp. Reply at III.A-23. But, in terms of the total distance of the origin-to-destination movement, which is of most relevance to the shipper, the OTRR

is reasonable and would meet the shipper's transportation needs."[59] In Duke/NS, which was decided after OTP filed its Opening Evidence, the Board adopted a rebuttable presumption that longer reroutes are less efficient and therefore will not meet the shipper's transportation needs.[60] The Board acknowledged, however, that a "longer route is not necessarily less efficient, as increased densities and other operational efficiencies may offset the additional distance-related costs."[61] Therefore, a complainant has the opportunity to present evidence to rebut the presumption of less efficiency on longer reroutes. In Part III.A.1.d.ii. of this Rebuttal Evidence, OTP demonstrates, despite the longer distance of its reroute between Fargo and Snowden, that the OTRR's transit times are statistically indistinguishable from BNSF's; the OTRR's service is more reliable and consistent; and/or increased densities and operational efficiencies of the OTRR leads to reduced costs which, in turn, results in lower rates that better meet the shipper's transportation needs, particularly for less time-sensitive general freight traffic.

In its Opening Evidence, OTP rerouted eleven categories of BNSF general freight traffic over the OTRR between Fargo and Snowden. These categories, with their alpha designations, are bare table intermodal (B), loaded unit grain (G), high priority manifest (H), normal priority manifest (M), premium service intermodal (P), stack intermodal (S), other unit train (not coal or grain) (U), vehicle train (V), empty unit grain (X), and highest priority intermodal (Z). BNSF originally challenged only a subset of this rerouted traffic, the "Z-Trains," in its October 8, 2003 Reply Evidence, because this

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reroute increases the length of haul only by an average of 4.65%. See Part III.A.1.d.ii., infra.

59 TMPA at 21.

60 Duke/NS at 26.

61 Id.

is its fastest, most time-sensitive traffic, for which BNSF has alleged the OTRR could not match BNSF transit times.[62] In its March 22, 2004 Supplemental Reply Evidence, however, BNSF subsequently challenged OTP's reroute of *all* general freight traffic, even though it had chosen not to do so in its Reply Evidence.

In Part III.A.1.d.i. of this Rebuttal Evidence, OTP accepts BNSF's exclusion of the Z-Train traffic, but rejects BNSF's assertion that the OTRR reroute will be less efficient for the remainder of the general freight traffic. Although OTP believes that even Z-train traffic can meet the TMPA standard, it has elected to remove this traffic from the OTRR in order to reduce the issues that the Board must resolve.

For the general freight traffic included in its SARR that OTP reroutes between Fargo and Snowden, the OTRR provides effectively faster transit times, more consistent service, and lower rates.[63] OTP demonstrates the OTRR's effectively faster transit times and more consistent service in Part III.A.1.d.ii.(c), Tables III-A-2 and III-A-3, infra. Table III-A-2 shows the average transit time and a single standard deviation for both BNSF's 2002 general freight traffic between Fargo and Snowden and OTRR's general freight traffic during its peak weak of October 11-18, 2021. Table III-A-3 contains the same information at three standard deviations.

BNSF incorrectly alleges that the OTRR provides slower transit times by comparing the average transit times on BNSF with the average transit times of the OTRR. However, it is statistically inappropriate to compare only the average transit times without also calculating the standard deviations. The standard deviations reveal how tightly the data is clustered around the

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62 BNSF Reply at III.A-41 to III.A-49.

63 See Part III.A.1.d.ii., infra.

average, or mean. One standard deviation accounts for approximately 68% of the data sample; two standard deviations account for approximately 95%; and three standard deviations account for approximately 99%. By comparing the standard deviations of the BNSF and OTRR transit times, the Board can see how diverse the transit times are on each route. The larger standard deviations on the BNSF transit times reveal that BNSF's average transit times include many movements that tend toward one extreme or the other in transit times. BNSF's methodology of only comparing "averages" describes the proverbial man who drowns in a lake with an average depth of three feet. The proper comparison is not to the "average" service, but to the range and consistency of service. To take this into account, and to properly compare the services offered by the OTRR with service offered by the BNSF, the Board should consider both the average transit time and three standard deviations for BNSF and the OTRR, as shown in Table III-A-3.

Although BNSF has faster average transit times, for several categories of general freight service, OTP's service is superior for *all* general freight categories, except H-Trains, when consistency of service is considered equally with transit time. For example, in Table III-A-3, BNSF's average transit time for S-Trains is hours with a standard deviation of . ıours. Given these statistics, it can be said, at a 99 percent confidence interval, that the upper limit of BNSF's S-Train average transit time lies between and hours. In contrast, the OTRR's average transit time for S-Trains is 14.2 hours with a standard deviation of 5.0 hours, meaning, at a 99 percent confidence interval, the upper limit of its average transit time lies between 14.2 and 19.2 hours. Thus, although the OTRR's point estimate average S-Train transit time is hours longer than BNSF's point

estimate average, when consistency of service, as measured by the deviation in the transit times, is taken into consideration, the OTRR is providing superior service.[64]

The only general freight exception to the above analysis is the H-Trains. The BNSF point estimate average transit time is hours with a standard deviation of ours. The OTRR point estimate average transit time is 13.9 hours with a standard deviation of 3.6 hours. At 99 percent confidence intervals, the upper limit of BNSF's and OTRR's average transit times range from to hours and 13.9 to 17.5 hours, respectively. At the upper end of the confidence intervals, the H-Trains are only s.

Moreover, this is a comparison of OTRR trains that are moving at higher 2021 traffic levels with the BNSF trains that are operating in 2002.

Across *all* general freight categories, the OTRR's standard deviations are much tighter than BNSF's actual 2002 standard deviations. This reflects a more reliable and consistent service on the OTRR between Fargo and Snowden because the OTRR's transit times are clustered more closely around the mean. Even on the H-Train traffic, for which BNSF has a lower average transit time, the OTRR's third standard deviation of 3.6 hours is much smaller than BNSF's third standard deviation of This means that 99% of the OTRR's H-Trains will be within +/-3.6 hours of the mean of 13.9 hours. By comparison, 99% of BNSF's H-Trains were within hours of the hour average. Thus, when the OTRR promises an average H-Train transit time of 13.9 hours, its H-Trains are much more likely to approximate that time than BNSF H-Trains will approximate its average of hours.

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[64] Indeed, this same analysis of BNSF's own evidence, using the RTC model, demonstrates that the OTRR's service is superior to BNSF's for all but two categories of general freight traffic. See Part III.A.1.d.ii.(c).

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For *all* the general freight categories, Table III-A-2 shows that BNSF's actual service is so erratic and inconsistent that the deviations in its transit times, even at a single standard deviation, range from *higher* than OTRR's deviations. This fact indicates that such traffic is not extremely time-sensitive, or if it is time-sensitive, that the OTRR's much more consistent and reliable service is superior to BNSF's existing service.

Consistency and reliability of rail service is one of the most important service factors to shippers. In fact, it often is ranked higher than transit times. In a 2003 shipper survey conducted by Morgan Stanley & Co. Inc., four out of every five respondents indicated that they would pay more for improved service reliability, compared to three out of five who were willing to pay more for faster transit times.[65] This is consistent with a 1997 survey conducted by BC Rail that ranked reliable and consistent service and competitive rates *above* transit times in importance.[66] Most recently, Pacer Stacktrain President Tom Shurstad told Traffic World that "Consistency of service is as important as speed."[67] The OTRR will provide much more consistent and reliable service than BNSF currently provides; with competitive, if not superior, transit times; and at significantly reduced rates. Thus, the OTRR's overall rail service will satisfy the transportation needs of shippers whose freight would be rerouted by providing service that is equivalent, or superior, to current BNSF service.

OTP's analysis of transit times and consistency of service is extremely conservative. It compares the OTRR's *peak* week transit times in its *peak* year of 2021 with BNSF's actual 2002

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[65] John Gallagher, "Service Over Speed: Morgan Stanley Survey Supports View that Rail Shippers Value Consistency Over Transit Times," Traffic World, p. 23 (Feb. 17, 2003). OTP Rebuttal Workpaper, Vol. III, p. 5138.

[66] "Fifth Annual Survey Identifies Customers' Priorities," BC Rail Carrier, p.2 (April 1997). OTP Rebuttal Workpapers, Vol. III, pp. 5139-42.

[67] John Gallagher, "UP, Heading Off Track?" Traffic World, p. 11 (April 12, 2004). OTP Rebuttal Workpapers, Vol. III, pp. 5143-44.

transit times. Since the OTRR will handle less freight on the Fargo to Snowden route in 2002 than it will handle in its 2021 peak year, the OTRR's 2002 transit times undoubtedly will be faster than the 2021 times shown in Tables III-A-2 and III-A-3, and thus compare even more favorably to BNSF's existing service.

Finally, BNSF's decision to challenge *only* the Z-Train reroute in its October 8, 2003 Reply Evidence is compelling evidence that even BNSF itself believed that OTRR's identical reroute of other general freight traffic would satisfy the transportation needs of shippers. Although the reroutes of all general freight traffic were identical, BNSF did not challenge OTP's reroute of the non Z-Train general freight traffic until the Board issued its decision in Duke/NS.[68] However, since the efficiency standard for reroutes was adopted in TMPA, which preceded the filing of evidence in this case, the Board can only assume that BNSF initially challenged *only* the Z-Train reroute, and not the identical reroute of any other general freight traffic, because BNSF did not believe, and could not demonstrate, that the other general freight reroutes were inefficient. Thus, it appears that BNSF is attempting to take advantage of the subsequent adoption of a rebuttable presumption in Duke/NS to prove a fact that it did not even allege in its Reply Evidence. Nevertheless, as demonstrated above and in Part III.A.1.d.ii., infra, OTP has effectively rebutted the Duke/NS presumption.

ii. The Duke/CSX reroute standard, which the OTRR satisfies, is not applicable to on-SARR reroutes.

In addition to excluding OTP's general freight traffic between Fargo and Snowden based upon the greater distance of the reroute, BNSF also excludes this traffic based upon a new rerouting standard adopted by the Board in Duke/CSX. The new standard requires that:

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68 Duke/NS at 26.

> *where traffic does not already utilize lines replicated by the SARR*, the traffic may not be included in the SAC analysis absent a compelling justification that the defendant carrier should itself be routing the traffic in this manner and that it is inefficient for it not to do so.

Duke/CSX at 16-17 [emphasis added]. BNSF's argument is specious, however, both because the OTRR reroute satisfies this standard and because this standard does not apply to on-SARR reroutes.

(a) OTP's reroute of general freight traffic between Fargo and Snowden satisfies the Duke/CSX standard.

The Duke/CSX standard states that "*where traffic does not already utilize lines replicated by the SARR*, the traffic may not be included in the SAC analysis absent a compelling justification...."[69] Evidence already in the record unequivocally establishes that the general freight traffic that OTP reroutes between Fargo and Snowden *does already utilize* lines replicated by the SARR, and thus, does not implicate the Duke/CSX standard.

The OTRR replicates 22.7 miles of the customary route of the rerouted traffic.[70] The rerouted traffic shares 22.6 miles of the customary route between Fargo and Surrey Junction, North Dakota and 0.1 miles at Snowden, Montana, which OTP illustrates in Rebuttal Ex. I-A-9. Although Fargo is the interchange point between the OTRR and the residual BNSF, Surrey Junction is the physical point where the OTRR deviates from the customary routing of general freight traffic between Fargo and Snowden. Since the OTRR clearly does replicate 22.7 miles of the customary route that the rerouted traffic currently uses, the OTP reroute of overhead general freight traffic satisfies the Duke/CSX standard.

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69 Duke/CSX at 16-17 [emphasis added].

70 OTP Opening, Electronic File "miles.xls".

(b) The Duke/CSX standard does not apply to on-SARR reroutes.

BNSF grossly misconstrues both the proper scope and purpose of the rerouting standard that the Board applied in Duke/CSX. That standard pertains solely to "off-SARR" reroutes, which require the residual incumbent to handle cross-over traffic *on a different line from the customary route*, as opposed to "on-SARR" reroutes, which do *not* alter the routing over the residual incumbent's portion of the movement. An on-SARR reroute, by definition, must replicate a portion of the customary route because, in order to be an on-SARR reroute, the SARR must interchange the rerouted traffic with the residual incumbent at points on the customary route of that traffic. Thus, the very wording of the Duke/CSX standard unequivocally indicates that it applies only to off-SARR reroutes.

The Board's analysis of both on-SARR and off-SARR reroutes properly has focused upon whether the transportation needs of the shipper would be met by the SARR.[71] In addition, however, the Board has required that off-SARR reroutes account for the additional costs imposed on the residual incumbent for having to reroute traffic on its system. On-SARR reroutes, such as those at issue in this case, raise no such concerns, because the costs of an on-SARR reroute are borne completely by the SARR itself, and thus are captured in the SAC analysis.

Duke/CSX represents the latest refinement by the Board of its principles for rerouting cross-over traffic. The Board began to develop these principles in TMPA and subsequently refined them in Duke/NS and CPL. In all three decisions, the Board left absolutely no doubt that it was concerned

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[71] TMPA at 19. The is the standard that OTP addresses in the preceding sections.

principally with off-SARR reroutes.[72] Indeed, the Board applied the standards adopted in those decisions to exclude only off-SARR reroutes. Similarly, in Duke/CSX at 16, the Board indicated that its rerouting discussion was a refinement of the general principles that it laid out in TMPA and Duke/NS. Thus, the Duke/CSX standard must be construed within the context of this history.

In TMPA, the Board first drew the distinction between on-SARR and off-SARR reroutes. The Board held that:

> [A] SAC proponent *may reroute traffic* that the SARR would handle from origin to destination, so long as the new route is reasonable and would meet the shipper's transportation needs. In that circumstance our SAC analysis can ensure that any added costs from the new route are reflected in the SAC analysis and, for the complainant to prevail, covered by the revenues available from that traffic.

TMPA at 21 [emphasis added]. An origin to destination reroute is, by definition, on-SARR. The Board immediately contrasted that scenario with one where the complainant redirects the *off-SARR* portion of a cross-over movement:

> On the other hand, redirecting the *off-SARR portion of traffic* introduces new variables that extend the inquiry well beyond the original parameters of the SAC analysis.

Id. at 22 [emphasis added]. Therefore, the Board held that "to reroute non-issue traffic, the complainant's SAC analysis must either take responsibility for the entire movement *from origin to destination* or fully account for the ramifications of requiring the residual carrier to alter its handling of the traffic." Id. [emphasis added].

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[72] E.g., TMPA at 23 ("TMPA has not adequately accounted for all *off-SARR* ramifications of such a change and thus has not supported its rerouting assumption.") [emphasis added]; Duke/NS at 25 ("This is the second SAC case in which a complainant has sought to reroute traffic in a manner *that would change the routing of the residual carrier*.") [emphasis added]; CPL at 21 (Duke/NS "refined and clarified SAC policy regarding rerouting of (non-issue) cross-over traffic in a manner *that would change the routing of that traffic on the residual carrier*.") [emphasis added].

Although the Board, in TMPA, contrasted off-SARR reroutes only with on-SARR reroutes handled by the SARR "from origin to destination," the Duke/NS decision subsequently clarified that the Board intended to permit *all* on-SARR reroutes, even when the reroute does not extend from origin to destination, as long as the reroute meets the shippers' transportation needs:

> As the Board held in TMPA, if a complainant wishes to reroute traffic in its SAC presentation without having the SARR operate over all of *the rerouted portion* of the move, it must ensure that the combined operations of the SARR and the residual carrier would be at least as efficient as the existing operations. At a minimum, the complainant must fully account for all of the ramifications of requiring the residual carrier to alter its handling of the traffic and any changes in the level of service received by the shippers.

Duke/NS at 26 [emphasis added]. The Board's reference to "the rerouted portion of the move," instead of the "the entire movement from origin to destination," clearly acknowledges that on-SARR reroutes are permissible even when the Complainant does not take responsibility for the entire movement from origin to destination. This clarification of TMPA is logical since reroutes that occur solely on the SARR, but for less than the entire length of the movement, do not require the residual incumbent to alter its handling of the traffic any more than reroutes from origin to destination. Since there are no ramifications to the residual carrier from on-SARR reroutes, the standard for evaluating the efficiency of an on-SARR reroute is that the level of service over the reroute meet the shippers' transportation needs.

The Duke/CSX refinement of TMPA, however, relates to the requirement that an *off-SARR* reroute account for the ramifications to the residual incumbent of altering its handling of the rerouted traffic from its customary route. Specifically, it establishes a presumption that the most extreme form of off-SARR reroute, *i.e.*, a reroute that has absolutely *no physical connection* to the customary

route,[73] is inefficient, absent a compelling justification that it is more inefficient for the incumbent not to use the reroute. This presumption by the Board is reasonable because an off-SARR reroute with no physical connection to the customary route requires the residual incumbent to incur additional handling costs at two separate locations and over two separate line segments that are not part of the customary route. Since on-SARR reroutes by their nature do not raise these issues at all (because the costs of the reroute are borne by the SARR itself and not the residual carrier), the Duke/CSX refinement of TMPA is not applicable to them.

The Board itself has recognized that:

> An existing carrier's route structure--which can be the product of a series of line constructions, mergers or line acquisitions, and line abandonments occurring over the course of many years--may be less than optimal. It might be more efficient to site a line differently or to eliminate redundant routes. Therefore, as a general matter, a SARR is not required to use either the configuration or routing of the defendant carrier, as rerouting can be an appropriate means of removing inefficiencies from a system.

Duke/NS at 25. BNSF currently has three parallel routes across the northern tier of the United States, ranging from approximately 30 to 130 miles apart at various points, from which the OTRR draws its traffic. These routes, which cross northern North Dakota, southern North Dakota and northern South Dakota, originally were constructed nearly 100 years ago for a very different purpose than they serve today.

Although BNSF claims that its current routing of all traffic handled by the OTRR is the most efficient, it can only make this claim based upon its existing infrastructure, which represents billions of dollars in sunk investment costs. BNSF does not claim that it would build those same lines today

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[73] "In this case, a new issue is presented by Duke's attempt to include traffic that would not, under its customary routing, *use any lines included in the SARR.*" Duke/CSX at 16 [emphasis added].

if it was constructing a new railroad. A single double track route is clearly more efficient than two parallel single track routes that are miles apart, because, for example, the double track configuration allows directional running and the ability to pass slower trains, which improves speed and service. In addition, by consolidating two parallel lines, a railroad can reduce or eliminate crew and MOW districts and eliminate redundant operating facilities. Thus, although BNSF may be routing traffic efficiently over its existing (*i.e.* sunk) infrastructure, that does not mean that a new entrant in a contestable market could not move that traffic more efficiently over new infrastructure that is designed specifically for its selected traffic.

A rerouting presumption, such as that adopted in Duke/CSX, makes abundant sense when applied to *off-SARR* reroutes of traffic from distant parts of the incumbent carrier's system. Such reroutes are less likely to be efficiency-based than on-SARR reroutes. For example, an off-SARR reroute that has no point in common with the customary route may still require the residual incumbent to operate portions of a redundant parallel line in order to connect with the SARR, potentially eliminating any efficiency gain from the reroute. Therefore, the Board appropriately has imposed a higher burden on a complainant to demonstrate that this type of off-SARR reroute is more efficient. Conversely, on-SARR reroutes have greater potential to improve efficiency by increasing traffic densities without imposing additional costs upon the residual incumbent. Therefore, the Duke/CSX presumption does not apply to on-SARR reroutes, and the Board should reject BNSF's attempt to discourage such reroutes by extending the heavy burden of the Duke/CSX presumption to complainants who engage in on-SARR rerouting.

The Board's actual application of its rerouting standard in Duke/CSX confirms the above interpretation. The facts that gave rise to the Duke/CSX rerouting standard were eight specific

movements that Duke included in its SARR that, "under their customary routing, generally *do not come within 250 miles* of the lines that would be replicated by the [SARR]."[74] This was an even more extreme form of off-SARR reroute than the Board was faced with in either TMPA or Duke/NS, and thus correctly justified further refinement of the off-SARR rerouting standards in those two decisions.

In significant contrast, the Board did not apply the Duke/CSX standard to at least six other reroutes that are similar to OTP's on-SARR reroute of non-coal overhead traffic. On page 18 of Duke/CSX, the Board identified the 24 reroutes challenged by CSX. Rebuttal Exhibit I-A-10 illustrates reroute numbers 1 and 10-14. Because Duke's SARR replicated 18.8 miles of the customary routes for these movements, the Board found that these reroutes were permissible under the Duke/CSX standard.[75] Although the Board ultimately rejected those reroutes, it did so because Duke did not attempt to justify their greater distance, which, under Duke/NS, left an unrebutted presumption that they were less efficient.[76] If the Duke/CSX standard had the scope argued by BNSF, the Board would have applied that standard to all six reroutes to conclude that they failed to meet the standard.

Since the Board did not apply the Duke/CSX standard to these six reroutes in the Duke/CSX decision itself, the Board logically cannot apply that standard to OTP's reroutes. The six Duke/CSX reroutes were all *off-SARR* reroutes that replicated 18.8 miles of the customary route. OTP's reroutes are *on-SARR* reroutes that replicate 22.7 miles of the customary route. If the Board did not apply the Duke/CSX standard to the off-SARR reroutes that replicate 18.8 miles of the customary

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74 Duke/CSX at 19 [emphasis added].

75 Duke/CSX at 18 (The last column of the chart indicates that that Board applied the Duke/CSX standard to *only* the last eight reroutes on the chart.).

76 Id. at 18-19.

route, it makes no sense for the Board to apply that standard to OTP's on-SARR reroutes that replicate 22.7 miles of the customary route. Indeed, since OTP's on-SARR reroutes do not require the residual BNSF to handle the traffic over *any* route different from the customary route, they raise even fewer concerns than the six reroutes in Duke/CSX, which were partial off-SARR reroutes that also shared some portion of the customary route.

Thus, it is quite clear that the Board never intended for the Duke/CSX standard to apply to the factual scenario presented by the OTP reroutes, since the OTP reroutes are on-SARR reroutes that do in fact replicate the customary route at both ends of the reroute.

(c) BNSF's proposed extension of the Duke/CSX standard to on-SARR reroutes is contrary to SAC principles.

Although BNSF actually concedes that the OTRR reroutes satisfy the Duke/CSX standard because they do replicate 22.7 miles of the customary route of the general freight traffic between Fargo and Snowden,[77] it nevertheless urges the Board to extend the Duke/CSX standard to "traffic whose real world route involves only *minimal* use of the facilities used by the issue traffic."[78] In other words, BNSF would extend the standard to on-SARR reroutes. As demonstrated in the previous section, such an extension would be contrary to the underlying rationale behind the Duke/CSX standard. In addition, it would be contrary to SAC principles.

BNSF provides several incomplete and inaccurate interpretations of the Coal Rate Guidelines that, if adopted by the Board, would completely eviscerate the SAC test. First, BNSF inappropriately divorces the concept of shared facilities and services from the SAC principle against cross-subsidization. Second, BNSF wrongly contends that a "shipper may only take the traffic densities

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77 BNSF Supplemental Reply at III.A-25.

78 Id. at III.A-26 [emphasis added].

that it finds on the route that it selects."[79] From these misinterpretations of Coal Rate Guidelines, BNSF ultimately concludes that there must be more than a "minimal" sharing of facilities between the SARR reroute and the customary route of cross-over traffic, because "[p]recluding a shipper from including in its traffic group rerouted traffic that does not customarily share facilities with the issue traffic on the SARR prevents that shipper from 'gaming' the SAC results by rerouting traffic to pay for facilities that it does not use."[80] Implicit in this conclusion is the unsubstantiated assumption that "minimal" sharing of facilities will result in an impermissible cross-subsidy of the issue traffic by the rerouted traffic.

The concept of shared facilities and the SAC principle against cross-subsidization go hand-in-hand. The Board stressed this fundamental fact in PPL II at 5-6 [footnotes omitted] [italics added]:

> Guidelines provides for *cost sharing* (the grouping of traffic to share the joint and common, i.e. unattributable, costs of providing rail service), but denounces *cross-subsidization* (the recovery of a shipper's attributable costs from other shippers). A fundamental principle of CMP is that "a captive shipper need not bear the costs of any *facilities or services* from which it derives no benefit." Indeed, a primary purpose of the SAC test is to avoid costs associated with such *cross-subsidization*.

The Board also clarified that "both cross-subsidization by and cross-subsidization of the captive issue traffic are proscribed by Guidelines."[81] Thus, cost sharing is both permitted and encouraged by Coal Rate Guidelines as long as it does not result in cross-subsidization between traffic that does not share joint and common facilities.

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79 Id.

80 Id. at III.A-26.

81 PPL Montana, LLC v. The Burlington Northern and Santa Fe Ry. Co., STB Docket No. 42054, Slip Op. at 9 (served Aug. 20, 2002) ("PPL I"). See also, PPL II at 6 ("Guidelines do not envision that a captive shipper may shift responsibility for paying for facilities it uses to other shippers who do not benefit from those facilities.").

Although cross-subsidization is implicit in BNSF's statement that a complainant should be prohibited from "rerouting traffic to pay for facilities that it does not use,"[82] BNSF never actually uses the term "cross-subsidy" or attempts to determine if a cross-subsidy of the issue traffic by the rerouted traffic exists. Instead, BNSF focuses solely on the extent to which the OTRR reroute and the customary route of general freight traffic between Fargo and Snowden "share" facilities. But, this alone does *not* prove the existence of an impermissible cross-subsidy.

BNSF's logic first goes astray with its statement that "the SAC test is designed 'to compute the rate a competitor in the market-place would need to charge in serving a captive shipper or a group of shippers who benefit from *sharing joint and common facilities.*'" [83] Although the statement itself is correct, BNSF mistakenly assumes that the sharing of joint and common facilities between the issue traffic and the rerouted traffic should be measured by the real-world, rather than the SARR, route. BNSF is wrong. As the Coal Rate Guidelines statement quoted by BNSF indicates, cross-subsidization is determined *by the SAC test*, which means it is determined on the basis of the shared facilities and services *on the SARR*. In PPL I, the Board adopted a test to determine whether *non-issue* traffic improperly subsidizes the issue traffic that examines whether certain segments of a SARR subsidize other segments when there is minimal sharing of facilities by the traffic on each segment. The PPL test refers to the shared facilities *on the SARR routing* to determine whether non-issue traffic is subsidizing the issue traffic. Indeed, it is illogical to conclude, on the basis of the facilities shared in the real world, that rerouted traffic is cross-subsidizing the issue traffic on the hypothetical

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82 BNSF Supp. Reply at III.A-26.

83 BNSF Supp. Reply at III.A-25, quoting Coal Rate Guidelines, 1 I.C.C. 2d at 528 [emphasis added by BNSF].

SARR, where there is in fact extensive sharing of facilities on the SARR. The SARR route establishes the joint and common costs that are properly shared, not the real-world route.

BNSF's second error is its gross distortion of the Coal Rate Guidelines to conclude that

> the shipper may only take the traffic densities that it finds on the route that it selects. The complainant may select the route with the greatest traffic densities to serve the issue traffic, but it has no right to create artificial densities by rerouting traffic that does not use the facilities of the selected issue traffic route.

BNSF Supp. Reply at III.A-26. Contrary to BNSF's assertion, SAC principles do not restrict a complainant to "traffic densities that it finds on the route that it selects." This statement would eliminate all reroutes. Neither is a complainant limited to replicating the incumbent's existing system, or a subset thereof. Yet, BNSF's position would effectively compel this result, since that is the only way a complainant could increase density on the SARR.

Indeed, the Coal Rate Guidelines themselves give the complainant every right to create densities that do not exist in the incumbent's current operations, and in fact, encourage the complainant to do so.

> The ability to group traffic of different shippers is essential to theory of contestability. It allows the captive shipper to identify areas where production economies define an efficient *subsystem* or *alternative system* whose traffic is divertible to a hypothetical competitor. Without grouping, SAC would not be a very useful test, since the captive shipper would be deprived of the benefits of any inherent production economies.

Coal Rate Guidelines at 544 [emphasis added]. A major purpose of the SAC test is to enable the complainant to design a SARR that benefits from economies of scope, scale and density:

> If these economies are significant, the captive shipper *can increase the traffic base for the stand-alone system* in order to lower the cost to itself. At the point that additional traffic would not lower the cost to the stand-alone group of shippers, production economies are

> exhausted and the most efficient plant size has been demonstrated. Thus, *by adjusting both the plant and the traffic base*, the captive shipper can identify and take full advantage of any economies of scope, scale and density.

Id. at 532 [emphasis added]. Any grouping of traffic that increases real-world density on the hypothetical SARR is by definition creating density that does not exist on the incumbent's system. If the complainant were precluded from grouping traffic on the SARR to create different densities than exist on the real-world route, it would eliminate a fundamental SAC tool.

The folly of BNSF's position also is demonstrated by its own acknowledgment that:

> While it could be appropriate for this non-coal traffic to share the costs of the limited SARR facilities it does use, that is not the revenue that Otter Tail has claimed. It has claimed revenue for the full movement between Snowden and Fargo, which is inappropriate.

BNSF Supp. Reply at III.A-27.[84] This rule would eliminate the benefit of rerouting any traffic because the complainant could claim revenue only for the portion of the customary route that the SARR replicates, but still would incur investment and operating costs for the entire portion of the reroute. Since reroutes, by definition, must deviate from the customary route, a complainant no longer would have any incentive to reroute traffic at all.

Finally, BNSF's proposed extension of the Duke/CSX standard is unworkable. Implicit in BNSF's argument is that the 22.7 miles of the customary route that the OTRR replicates is "minimal," and thus the rerouted traffic should be excluded by the Duke/CSX standard. But, BNSF makes no attempt to explain how it arrived at this conclusion, nor did BNSF attempt to identify how much additional replication of the customary route is necessary in order not to be considered "minimal"

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[84] This passage is self-contradictory. OTP has claimed revenue for the full movement between Snowden and Fargo because the movement would use those SARR facilities. Presumably, BNSF really meant to say that it would be appropriate for the rerouted traffic to share the costs of the 22.7 miles of the SARR that replicates the customary route.

(*e.g.*, 50, 100, 200 or more miles). If Complainants are to present a SARR that meets BNSF's proposed extension of Duke/CSX, they must have some definitive guidance. Fortunately, as discussed in the previous section, the Board need not engage in this parsimonious determination, because the Duke/CSX standard applies only to off-SARR reroutes.

In Duke/CSX, the Board only expressed concern over reroutes of "traffic that would not, under its customary routing, use *any* lines included in the SARR."[85] In fact, as discussed in the previous section, the Board expressly did not apply its new standard to reroutes that shared even fewer facilities with the customary route than the OTRR shares with the customary route of its rerouted traffic. Moreover, the specific reroutes that concerned the Board in Duke/CSX were movements "that, under their customary routing, generally *do not come within 250 miles* of the lines that would be replicated by the [SARR]."[86] The Duke/CSX reroutes were off-SARR reroutes from distant parts of the incumbent's system that had no connection at all with any portion of the SARR. In so rerouting, the Duke/CSX complainant also required the residual incumbent to handle this traffic almost entirely over lines that this traffic otherwise would not traverse, without any inquiry into the efficiencies of this rerouting over the residual incumbent or the additional costs that would be borne by the residual incumbent. In this situation, the Board correctly concluded that "it is not appropriate to divert traffic from other parts of the defendant carrier's system to help defray costs for the portion of the system used by the complainant."[87]

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85 Duke/CSX at 16 [emphasis added].

86 Id. at 19 [emphasis added].

87 Id. at 16.

The Board also appropriately drew a bright line between reroutes that replicate a portion of the customary route and reroutes that do not do so (*i.e.* on-SARR vs. off-SARR). When the reroute is on-SARR, none of the Board's concerns in Duke/CSX are present. First, there is not a wholesale shifting of traffic from distant parts of the residual incumbent's system to the SARR, since the customary route directly connects with, and may even overlap, the SARR. Second, on-SARR reroutes do not require the residual incumbent to alter the route of the traffic over any part of its system, and thus do not require the residual incumbent to bear increased costs. Thus, the Board need not be concerned with the extent to which the reroute replicates the customary route, as BNSF urges, but only with whether or not there is *any* connection between the two routes. That, in fact, is the rule that the Board adopted in Duke/CSX, when it held, "where traffic does not already utilize lines replicated by the SARR, the traffic may not be included in the SAC analysis absent a compelling justification that the defendant carrier should itself be routing the traffic in this manner and that it is inefficient for it not to do so." The Board should reaffirm that this standard applies as written, not as BNSF attempts to rewrite it.

d. The OTRR's Revenue Divisions on Cross-Over Traffic are Based on the Best Evidence and Procedures.

Nearly a decade ago, the Board first addressed the question of how to allocate cross-over traffic revenue between a SARR and the residual incumbent. The Board adopted a market-based approach and, in the absence of actual divisions data, adopted a mileage-based procedure to estimate what would be the market-based divisions between a SARR and the residual incumbent. Although the Board has not significantly altered its mileage-based procedure over the last decade, in Duke/NS, it recently, and inexplicably, departed from its prior precedent, which held that the purpose of the mileage-based procedure was to estimate market-based divisions. Instead, the Board described the

mileage-based procedure as a cost-based approach and held that evidence of actual divisions would not be particularly instructive. This inexplicable departure from well-established precedent is unjustified and should be remedied in this proceeding, where OTP is the first complainant ever to present evidence of actual, market-based, divisions to properly allocate cross-over revenue between a SARR and the residual incumbent.

i. For nearly ten years, the Board held that actual, market-based, divisions are the best evidence of the revenue a SARR would earn on cross-over traffic.

The first in a series of ICC and STB decisions holding that actual divisions are the best evidence of the appropriate division of cross-over revenues is Nevada Power II, 10 I.C.C. 2d 259 (1994). After concluding that cross-over traffic should be included in the SARR and treated as if it would be interchanged with the incumbent carrier at the appropriate end points of the SARR, the ICC turned to the question of how revenues should be allocated between the SARR and the residual incumbent for this cross-over traffic:

> In the absence of any better evidence, we will prorate the revenues attributable to the cross-over traffic among the SARR and the incumbent carriers on a mileage basis, as proposed by NPC. This approach is consistent with the treatment in our staff's preliminary analysis of historically interlined traffic *for which actual (market-based) divisions are not available.*

Id. at 267-68 [footnote and citation omitted] [emphasis added]. In a separate statement commenting on the significance of this newly adopted approach, Chairman McDonald declared "We find that the proper approach is to estimate what the *market-based* divisions would be, and *this will be the standard for future cases*. Id. at 280 (Chairman McDonald commenting) [emphasis added]. Thus, from the outset of the ICC's acceptance of cross-over traffic, the agency's objective has been to estimate actual, market-based, divisions.

Consistent with its market-based approach, the Board repeatedly has acknowledged the superiority of evidence based on actual divisions. In the absence of any evidence on actual divisions data in past cases, however, the Board has employed a series of evolving mileage-based procedures to estimate actual, market-based, divisions. First, the Board used a straight-mileage prorate method in Nevada Power II. Then, in McCarty Farms at 472,[88] the Board modified the straight mileage proration method to create the MMP method. The Board used the MMP method in every subsequent rate case until Duke/NS, in which the Board adopted a third iteration of its mileage-based procedure, known as the MSP method.

While this milage-based proxy for actual, market-based divisions was evolving the agency continued to reaffirm the superiority of actual, market-based, divisions. In FMC, the Board unequivocally reaffirmed its holding in Nevada Power II that actual, market-based divisions, are the best evidence for the proper allocation of cross-over revenues. Citing both Nevada Power II and McCarty Farms, the Board stated that "This [MMP] is the best procedure for allocating revenues to carriers *where market-based divisions are not available.*"[89] The Board noted that FMC had requested actual divisions from UP in discovery, but that UP's refusal had

> denied FMC the opportunity to produce an alternative algorithm that might be more suitable [than MMP] for estimating market based divisions for these movements. Thus, *in the absence of any better evidence*, we [the Board] use FMC's [MMP] method to estimate [SARR] divisions for these movements.

FMC at 30 [emphasis added]. Clearly, the "more suitable" procedure and the "better evidence" would have been actual market-based divisions. In fact, the Board touted the significance of actual

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88 McCarty Farms, Inc. v. Burlington Northern, Inc., 2 S.T.B. 460 (1997) ("McCarty Farms").

89 FMC at 27, note 62 [emphasis added].

divisions when it also held that standard division sheets "are not as *instructive* as UP's actual divisions of total movement revenue."[90] In this proceeding, OTP has used actual BNSF divisions data produced in discovery to develop the algorithm that FMC was unable to develop due to UP's refusal to produce its actual divisions data.

In Duke/NS, the Board departed from the above precedent without even acknowledging the departure, much less explaining it.[91] Contrary to its determination in FMC that actual divisions would be "instructive," the Board reached precisely the opposite conclusion in Duke/NS:

> Nor would information about NS's actual divisions with other carriers (which Duke requested in discovery but did not receive) be particularly *instructive*, as those divisions presumably reflect a wide range of commercial considerations across a broad spectrum of traffic and gateways.

Duke/NS at 20, note 29 [emphasis added]. This statement departs from the precedent discussed above, and expressly contradicts explicit language to the contrary in Nevada Power II and FMC. Yet, the Board made no reference to those decisions, nor did it attempt to explain how the "best evidence" suddenly no longer is "instructive."

Despite the clarity of this precedent, BNSF accuses OTP of "mischaracteriz[ing] the prior state of the law regarding revenue divisions."[92] Specifically, BNSF points to statements by the Board in PPL I and TMPA that "we have not adopted a single, preferred *procedure* for developing revenue

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90 Id. at 31 [emphasis added].

91 This failure would be reversible error in Duke/NS, except that the issue had no bearing on the outcome of the decision. See PG&E Gas Transmission, Northwest Corp. v. FERC, 315 F. 3d 383, 390 (D.C. Cir. 2003); Greyhound Corp. V. ICC, 551 F. 2d 414 (D.C. Cir. 1977); Greater Boston Television Corp. V. FCC, 444 F. 2d 841, 852 (D.C. Cir. 1970).

92 BNSF Supp. Reply at I-12.

divisions on cross-over traffic."[93] But BNSF misconstrues the term "procedure." While never completely wedding itself to a specific *procedure* for estimating market-based divisions, the Board's *approach* always has been to apply a *procedure that would approximate market-based divisions.*

Until Duke/NS, not only had the Board consistently described its mileage-based revenue allocation procedures as a "market-based" approach, it repeatedly had stated that actual divisions would be the "best evidence." The Board was correct in its prior precedent and it should reaffirm that precedent in this proceeding by reversing its contrary *dicta* in Duke/NS.

ii. BNSF's actual divisions are the best evidence of market-based divisions between the OTRR and the residual BNSF.

In this proceeding, OTP is the first SAC complainant to obtain discovery and submit evidence of actual divisions to determine the appropriate, market-based, allocation of cross-over revenue between a SARR and the residual incumbent. In its Opening Evidence at III-A-17 to 21, OTP used actual BNSF divisions to develop an algorithm that extrapolates market-based divisions for cross-over coal traffic and some overhead non-coal traffic. This is the same procedure that the complainant attempted to develop in FMC, but was stymied by UP's refusal to provide actual divisions data.[94] In this case, however, BNSF has provided OTP with its actual divisions data for coal and several other commodities, which has allowed OTP to present *better* evidence of market-based divisions for cross-over traffic than the MSP method, which is the most recent iteration of the MMP methodology that the Board declared, in FMC, to be "the best procedure for allocating revenues to carriers where

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93 PPL I at 7, note 14; TMPA at 31, note 74 [emphasis added].

94 FMC at 30.

market-based divisions are not available."[95] In those instances where BNSF did not produce actual divisions data for a non-coal commodity moving in overhead service, OTP has used the MSP method.

Only five months after OTP submitted its Opening Evidence, however, the Board issued the Duke/NS decision, containing *dicta* that actual divisions would not "be particularly instructive," which departed from nearly ten years of contrary precedent.[96] If that *dicta* is followed in this case, it would summarily reject OTP's evidence of actual BNSF divisions. Because actual divisions were not in fact before the Board in Duke/NS, the issue could not have been fully argued and considered by the Board. On the other hand, the issue is squarely before the Board in this proceeding. OTP believes that, if indeed the Board intended to depart from its precedent in this *dicta*, it should reconsider its conclusion that actual divisions would not "be particularly instructive," in light of a more fully developed record in this proceeding.

The Board's abbreviated statement, in Duke/NS, as to why actual divisions would not be particularly instructive is unfounded. The Board expressed its belief that actual divisions are not instructive because they "presumably reflect a wide range of commercial considerations across a broad spectrum of traffic and gateways."[97] The very purpose of a regression analysis, however, is to determine the extent to which an equation derived from a sample is a reliable predictor for the general population. In addition, when a regression algorithm is used to predict the revenue divisions of a large number of cross-over movements, as OTP has done, the *total* revenue allocation between the SARR and residual incumbent would be accurate, as it is in the case of the OTRR, even though

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95 FMC at 27, note 62.

96 Duke/NS at 20, note 29.

97 Duke/NS at 20, note 29.

the algorithm's prediction of the cross-over revenue allocation on an individual movement may be imperfect. This is proved by the Central Limit Theorem, discussed at Part III.A.3.c.iii. and at OTP Rebuttal Exhibit III-A-14, infra.

OTP's regression analysis tested mileage as the independent variable and found a very strong correlation with BNSF's actual divisions across the general population.[98] This should not be surprising to the Board, since it long has used mileage as a proxy for actual divisions in its mileage-based revenue allocation formulas, such as MMP and MSP. OTP's regression analysis confirms the appropriateness of the MMP and MSP procedures where actual market divisions are not available; but more significantly, OTP's regression analysis is superior to MMP and MSP because it is based upon actual BNSF divisions.

In addition, OTP's regression analysis does not raise most of the concerns expressed by the Board, in Duke/NS, about the use of actual divisions. First, OTP has developed separate algorithms for coal and overhead general freight traffic in order to reflect different pricing for those different commodity types. OTP also has developed two separate algorithms for coal traffic, based on whether BNSF handled the coal for more than or less than 200 miles, which the data indicates is a threshold distance at which different commercial considerations come into play. This threshold is consistent with evidence presented by UP, in FMC at 30, that railroad economics are very different on movements of less than 200 miles. These regression procedures directly address the reasons that the Board identified in Duke/NS for rejecting the use of actual divisions, and in so doing, have proven the ability of OTP's regression algorithms to predict, based upon real-world data, the probable revenue divisions between the OTRR and the residual BNSF in the hypothetical world of the SARR.

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[98] OTP Opening Ex. III-A-6.

In Duke/NS, the Board also seems to have lost sight of the fact that MMP and, by extension, MSP are, first and foremost, estimates for market-based divisions, not costs.[99] There, the Board "first considered the more general question posed by NS of whether divisions should be based on a market-based or a cost-based inquiry, and concluded that a market-based inquiry is not appropriate for a SAC analysis."[100] Further into its decision, the Board stated:

> In the absence of a better supported method, the Board is left to continue to apply a mileage-based approach, which clearly bears some relationship to the relative total costs NS incurs to provide service over each segment.

Duke/NS at 22. While the Board is correct that a mileage-based approach bears some relationship to costs, it misconstrues the concept to incorrectly conclude that cost considerations are paramount and that market considerations are irrelevant.

When the Board originally adopted a mileage-based methodology as an estimate for market-based divisions, it did so with the understanding that the recovery of costs, among other factors, is implicit in market-based divisions. Specifically, the Board observed that "market-based divisions result from the interaction of supply considerations (the relative costs incurred by the carriers in providing the interline movement) and demand considerations (the relative bargaining power of the two carriers)."[101] Because costs are reflected in market-based divisions, the best procedure to estimate market-based divisions also will consider costs. Thus, in McCarty Farms, for example, the Board developed the MMP method by adding mileage blocks to the straight-mileage prorate method

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99 See Nevada Power II at 267-68 and 280; FMC at 27, note 62; TMPA at 31.

100 Duke/NS at 17. The Board reached the correct result in rejecting NS's market-based approach, not because it was a market-based approach, but because the approach was a violation of SAC principles. Id. at 18, note 28, citing Nevada Power II at 265-66, rejecting the "efficient component pricing" procedure as inconsistent with a contestable market.

101 Nevada Power II at 280 (Chairman McDonald commenting).

in order "to account for non mileage-based costs" that otherwise would be missed in a straight-mileage estimation of market-based divisions.[102] The purpose of the mileage-based approach, however, remained the estimation of market-based divisions.[103] It follows, therefore, that actual divisions data is even *better* evidence of market-based divisions for cross-over traffic.

The fact that OTP's regression algorithm in fact allocates revenue to the residual BNSF that more than covers its attributable costs of carrying the cross-over traffic is evidence that actual, market-based, divisions do consider costs. It also refutes BNSF's charge that OTP's market-based approach merely assumes that the residual incumbent will receive sufficient revenue from a market-based revenue allocation.[104] OTP has verified that its regression algorithm allocates $918 million *above* the residual BNSF's attributable costs in the base year.[105] This resolves any doubt that the residual BNSF is receiving a fair contribution to its unattributable costs, particularly since BNSF has not offered any evidence to the contrary.

The market-based divisions data produced by BNSF in discovery is the best evidence for calculating the division of cross-over revenues between the OTRR and the residual BNSF because the relationship that exists between real world interline partners is market-driven and the same market forces would apply to the formation of revenue division agreements between the OTRR and the residual BNSF. OTP's regression algorithm extrapolates revenue divisions on cross-over traffic from

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102 McCarty Farms at 9.

103 See FMC at 27, note 62 (citing Nevada Power II and McCarty Farms for the conclusion that MMP "is the best procedure for allocating revenues to carriers where market-based divisions are not available.").

104 BNSF Supp. Reply at I-13.

105 See Part III.A.3.c.v., infra.

BNSF's actual, market-based, divisions data in order to reflect the effects of real-world considerations, including cost.

BNSF argues that there is no similarity between real world interline arrangements and the hypothetical arrangement between a SARR and the residual incumbent. Thus, BNSF alleges that OTP's regression algorithm is not grounded in the logic of the assumed negotiations between the OTRR and the residual incumbent because those negotiations are unlike the negotiations that occur in the real world.[106] But, BNSF's criticism is premised upon deconstructing its existing system rather than constructing the hypothetical SARR as a replacement for parts of BNSF's system. For example, BNSF argues that, "In the contrived world of hypothetical cross-over movements, nothing new is being created. Instead, there is an artificial fragmentation."[107] But, in the hypothetical world of the SARR, the cross-over movement *is* the creation of something that otherwise would not exist. OTP simply has extrapolated the market-based divisions that BNSF has negotiated when creating real world interline movements to predict what the divisions between the OTRR and the residual BNSF would be in the hypothetical world.

BNSF's argument for a cost-based approach is contrary to the underlying assumption of contestability in a SAC analysis.[108] The OTRR should have the same ability to attract and carry traffic as BNSF, including the option to carry traffic for only a portion of the entire movement. The OTRR also should have the same bargaining options that BNSF enjoys when it engages in rate division agreements with other carriers. This means that the SARR's rate divisions should reflect the outcome

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106 BNSF Reply at III.A-63.

107 Id. at III-A-62.

108 See Part III.A.1.a.i., infra, and OTP Rebuttal Ex. III-A-8, "Rebuttal Verified Statement of George H. Borts."

of the same bargaining process that presently occurs between BNSF and other railroads. BNSF's actual, market-based, divisions are by definition representative of the divisions that BNSF achieves through negotiations with other carriers. Thus, it would be an impermissible barrier to entry to artificially impose a cost-based approach to revenue allocation in the absence of any evidence that BNSF negotiates its own revenue divisions in this way. OTP's market-based approach, on the other hand, replicates real-world considerations, and thus is a superior revenue allocation methodology, which is a fact the Board consistently has recognized since Nevada Power II.

Contrary to real-world behavior, BNSF also would allow the residual incumbent to retain its entire contribution on the through movement, as the only mutually beneficial outcome.[109] The gist of BNSF's argument is that the residual incumbent would price its portion of the through service up to the cost to the SARR of building the facilities itself to provide end-to-end service. But this is a distorted interpretation of the make-or-buy decision that firms are faced with in any contestable market and it flies in the face of rational economic behavior. In a contestable market, the firm undertaking the make-or-buy decision has no need to know the avoidable cost of its supplier. It only needs to know the price the supplier offers to get the entrant's business. The Board repeatedly has recognized that it makes economic sense for the residual carrier to accept cross-over traffic at any price that covers its attributable costs and contributes something to its unattributable costs.[110] Therefore, while we do not know what the residual BNSF would charge to connect and terminate traffic that originates on the OTRR, that price may be inferred from the attributable cost of service, which is the real point at which both carriers mutually benefit from the arrangement. Since OTP has

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109 BNSF Reply at III.A-62.

110 TMPA at 31, note 73.

demonstrated that its regression algorithm would allocate sufficient revenue to cover more than the residual BNSF's attributable costs,[111] it is clear that the residual BNSF, as a rational business, would agree to handle the cross-over traffic at the revenue levels allocated by this method.

BNSF further claims that both OTP's regression algorithm and the MMP/MSP method are biased in favor of short-haul origin carriers on movements of less than 200 miles.[112] BNSF's criticism, however, directly contradicts claims made by UP, the only other Class I railroad that originates coal in the PRB. In FMC, UP presented evidence, based on actual division sheets, "that the [MMP] method *understates* the divisions that would be expected by interline carriers that originate or terminate traffic with hauls shorter than 200 miles [and] that short originating and terminating movements have higher relative costs and tend to receive a higher division than the [MMP] method would accord."[113] The Board chose to rely upon the MMP method only because it was "inappropriate for UP to deny FMC access to actual division data and then to rely on its division sheets to rebut the [MMP] method for only selected traffic."[114] Here, BNSF takes precisely the opposite position from UP. The principal difference between this case and FMC is that, in this case, BNSF *has produced* actual divisions data, and that data supports UP's contention that the MMP method actually *understates* the real world divisions expected by origin and destination carriers with hauls of less than 200 miles.

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111 See Part III.A.3.c.v., infra.

112 BNSF Reply at I-15 and III-A-66-67; BNSF Supp. Reply at III.A-33..

113 FMC at 30 [emphasis added].

114 Id. at 31.

Unlike BNSF, OTP validates its market-based procedures with real-world evidence. OTP presents such evidence through Mr. David Weishaar, the former head of coal marketing for the former Chicago and North Western Railway Company ("CNW"), in Part III.A.3.c.vi., infra. Mr. Weishaar describes how divisions negotiations are handled in the real world and concludes that OTP's market-based methodology accurately reflects the results of real world negotiations. He also testifies that variable costs and traffic densities, which are integral to BNSF's cost-based DARA methodology and to BNSF's so-called "enhanced" MSP methodology, do not play any role. In his experience, relative mileages are the starting point for negotiations, with additional compensation provided to carriers that originate and terminate the traffic. The results of OTP's regression analysis are consistent with Mr. Weishaar's real-world observations.

iii. OTP has presented a statistically reliable regression algorithm.

In addition to attacking OTP's reliance upon actual divisions, BNSF criticizes OTP's regression analysis as unreliable. BNSF cites the following six alleged errors in OTP's approach: (1) unreliably small sample sizes; (2) unjustified stratification of the data; (3) use of data points that are not representative of the SARR coal traffic; (4) failure to test all relevant independent variables that logically would affect the value of the dependent variable; (5) an inappropriate functional form in the regression equations; and (6) reliance on regressions to predict values outside the range of actual data points used in the regression.[115] As discussed in Part III.A.3.c.iii, infra, BNSF's criticisms are baseless attempts to discredit the best evidence in the record for allocating cross-over revenue.

BNSF's criticism of the sample size is reminiscent of its attempts to discredit its own data elsewhere in this proceeding. In developing its regression equations, OTP relied upon *all* of the

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[115] BNSF Reply at III.A-68.

relevant data that BNSF produced in discovery. Therefore, BNSF cannot complain about small sample sizes. Nevertheless, BNSF misrepresents the sample size, which is based on data from 3,334 separate waybills, not five data points, as BNSF suggests. In the final analysis, OTP has produced creditable estimates of cross-over divisions using generally accepted statistical methods. The sample size is accounted for and reflected in the variances, standard deviations and confidence intervals.

BNSF's criticism of OTP's stratification of the data is unjustified. Stratification is a powerful and acceptable statistical tool that reduces the data required to obtain creditable estimates. OTP stratified the data at the 200 mile point, which is a well-recognized threshold at which the effect of market power significantly changes. In fact, as demonstrated earlier, in FMC at 30, UP presented evidence that railroad economics are very different on movements of less than 200 miles. This offers independent affirmation from a Class I railroad of the reasonableness of OTP's stratification.

BNSF's criticism of OTP for not using data points that are representative of the SARR's coal traffic is a red-herring. It would be impossible to draw samples from the universe to which the regression is to be applied, because no such movements exist in the real world. That, indeed, is the very reason for the regression equation.

BNSF's criticism of OTP for not testing any independent variable other than mileage does not undermine the regression equation. The Board has acknowledged the primary significance of mileage in its own use of mileage based prorate methods to estimate market-based divisions in the absence of actual divisions data. In addition, multi-variable analyses require more data than BNSF agreed to produce in discovery. Thus, OTP's use of mileage as the independent variable produces results that are consistent with the mileage prorate methodologies, but superior because OTP has used actual divisions.

BNSF's criticism of OTP for using a linear functional form in the regression algorithm is misplaced. BNSF argues that a linear function generates absurd results by giving the OTRR 25% of the revenue for carrying the traffic zero miles. But, this argument ignores the fact that a constant in a linear regression is a fixed charge that occurs only when the x variable (*i.e.*, mileage) is greater than zero. Since OTP never claimed revenue for zero mile movements, this alleged absurdity never occurs. Moreover, this alleged absurdity would occur on a less than 200 mile move even under the Board's MSP methodology, which would give a SARR one mileage block for originating the traffic and doing nothing else (25 percent), while giving the interline partner the three remaining mileage blocks (75 percent).

Finally, BNSF conveniently ignores, or overlooks, the Central Limit Theorem when it criticizes OTP for using its regression algorithm to predict results for movements that lie outside the relevant range of the actual data points used in the regression. Application of the Central Limit Theorem to OTP's regression analyses demonstrates that the small sample size and large confidence intervals for a point estimate of single (one time) application of the regression estimates have no significant impact on the final result because OTP has applied these estimates repeatedly in each of the three strata (e.g. non-coal, over 200-mile coal, under 200-mile coal).

iv. <u>BNSF's DARA methodology is fundamentally flawed.</u>

BNSF attacks OTP's use of both actual divisions and the MSP methodology to allocate cross-over revenues precisely because they are premised on market-based divisions. Instead, BNSF advocates a cost-based approach, based on its DARA methodology, which emphasizes the density of the lines traversed by the cross-over traffic. As demonstrated above, however, a purely cost-based approach is inconsistent with both Board precedent and SAC principles, and it is inferior to market-

based divisions. In addition, OTP has identified numerous fundamental flaws with the DARA procedure itself. Furthermore, since BNSF filed its Reply Evidence on October 8, 2003, the Board has rejected DARA in three separate cases.[116]

OTP has identified the following problems with the DARA methodology: (1) BNSF has not supported DARA with any real-world data; (2) DARA is inconsistent with BNSF's actual divisions data; (3) DARA measures density in gross tons, which exaggerates the revenue needs of the residual incumbent; (4) DARA imposes a revenue sharing rule on the SARR that the incumbent itself is not required to utilize; and (5) DARA creates perverse incentives for railroads to understate actual density. These are discussed in detail in Part III.A.3.c.ii., infra.

In Duke/NS, the Board properly rejected DARA because (i) it wrongly assumes "that light-density lines have the same fixed costs as heavy-density lines" and (ii) "there is no evidence that fixed costs per mile are the same for the [SARR's] segment of any move as they are for the residual [carrier's]."[117] BNSF concedes that the DARA formula is the same equation that the Board rejected in Duke/NS and that "the formula used in the second step of DARA can be characterized by the assumption that unattributable costs, as distinct from attributable costs, are the same per route mile on the less dense as well as more dense segments of cross-over movements."[118] Nevertheless, BNSF irrationally claims that "the problem the Board *perceived* with NS's revenue allocation methodology

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116 Duke/NS at 20-22; CPL at 20-21; Duke/CSX at 21.

117 Duke/NS at 21, 22. See also CPL at 20-21; Duke/CSX at 21.

118 BNSF Supp. Reply at III.A-39 and III.A-41 to III.A-42.

does not in fact exist with the DARA approach."[119] BNSF, however, has "mis-perceived" the Board's decision.

BNSF asserts that the Board's criticism of DARA for assuming identical fixed costs per mile is unfounded.[120] BNSF contends that DARA Step One does capture differences in fixed costs between high and low-density lines because Step One uses URCS variable costs, which measure BNSF's costs over a medium to long-term horizon. Therefore, according to BNSF, DARA Step One captures fixed costs that vary with density, since those fixed costs become variable over the long-term, and allocates revenue to cover those costs in direct proportion to density.[121] BNSF then asserts that the remaining fixed costs, which are measured and allocated in inverse proportion to density by DARA Step Two, in fact are identical for low and high-density rail lines.[122] This leads BNSF to mistakenly conclude that the Board's criticisms in Duke/NS were directed solely to DARA Step Two and that the Board somehow overlooked DARA Step One, which would have addressed the Board's concerns.

BNSF's effort to blur the distinction between fixed and variable costs does not cure DARA's dispositive flaws. By using BNSF's URCS road property variable costs for *both* the OTRR and residual BNSF, DARA wrongly assumes that the OTRR and residual BNSF have *identical* total road property investment costs. This assumption lacks any evidentiary support. In fact, all of the evidence on the subject confirms that the OTRR's road property investment costs are *greater* than the residual

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119 Id. at I-15 [emphasis added].

120 Id. at I-16.

121 Id. at III.A-39 through III.A-40.

122 Id. at III.A-41 through III.A-42.

BNSF's.[123] In Duke/NS, the Board instructed that any cost-based allocation of revenues must fairly approximate *each* carrier's fixed and variable costs:

> There may be merit to allocating revenues based on the relative variable cost and average fixed cost to haul traffic over each line segment of the move, *if those costs can be fairly approximated.*

Duke/NS at 22 [emphasis added]. In "fairly approximating" such costs, the Board stressed that "the variable cost for *each carrier's segment of the movement* would need to be calculated." Id. at 20 [emphasis added]. Thus, the Board's criticism of DARA in Duke/NS extends to the use of the incumbent's URCS variable costs for both the residual incumbent and the SARR in DARA Step One.

BNSF also wrongly concludes that, after DARA Step One accounts for attributable costs, including all fixed costs that vary with density, the remaining unattributable costs must be identical because they do not vary with density. But, BNSF ignores other factors besides density that can cause the fixed and unattributable costs of high and low-density lines to differ. The amount of these costs depends on numerous timing and site-specific variables, such as terrain, that have nothing to do with traffic density. The most significant variable in this case is the timing of the parties' investments.[124] In accordance with SAC methodology, the OTRR incurred all of its fixed costs in 2000 and 2001 dollars, whereas BNSF incurred its fixed costs over the span of the last 100 years. As a consequence, the OTRR's fixed costs far exceed BNSF's. The OTRR's higher fixed costs bear out the Board's prediction that "[i]f the fixed costs per mile are not roughly the same, then [DARA] could allocate too much revenue to the light density lines."[125]

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123 See Part III.A.3.c.ii., infra.

124 See Part III.A.3.c.ii., infra.

125 Duke/NS at 21.

2. OTP Has Presented the Only Operating Plan that Will Efficiently Handle All of the OTRR's Traffic.

OTP developed the OTRR's operating plan based upon the peak traffic day in the peak traffic year on the OTRR, which is October 18, 2021. By designing the OTRR for its peak traffic day, OTP has provided more than sufficient capacity to handle all operations during the 20-year DCF period. Based upon the peak day traffic levels, OTP determined operating and investment requirements, such as the amount of locomotives, crews, and track needed to handle this traffic. OTP validated these parameters through the use of a string model, which is a computer based railroad capacity program.

BNSF largely has accepted the OTRR's system configuration, with only small differences in route miles and track miles that are mostly attributable to differences in traffic volumes.[126] However, as discussed further below, this significant difference in traffic volumes results in a mis-match of operating plans that makes it impossible to compare the OTP and BNSF operating plans. BNSF also uses a computer program, the RTC Model, to validate its operating plan. Unlike OTP, however, BNSF does not model the entire OTRR, which renders BNSF's analysis unreliable. Furthermore, also unlike OTP, BNSF has not provided the source code for the RTC model, so that OTP can evaluate its reliability.

a. OTP has presented the only operating plan capable of handling all of the traffic volumes that OTP has placed on the OTRR.

Although the operating plans of OTP and BNSF for the OTRR are very similar,[127] BNSF developed its operating plan for vastly reduced traffic levels. BNSF has excluded over 54 million tons

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[126] These differences have been magnified in BNSF's Supplemental Reply Evidence, since BNSF's exclusion of all rerouted general freight traffic caused BNSF to eliminate the Glendive to Snowden line segment from the OTRR as unnecessary.

[127] See Part III.B., infra.

of coal (84 million tons in OTP's alternative case) and over 13 million tons of general freight traffic from the OTRR. The most significant changes that BNSF has made to the OTRR's configuration are to reduce facilities on the Converse to Reno Junction segment, which handles less coal traffic on BNSF's version of the OTRR, and to eliminate the Glendive to Snowden line segment, which becomes unnecessary if the general freight traffic is removed from the OTRR. As demonstrated in Part I.C.1., supra, and Part III.A.1., infra, OTP has rejected the overwhelming majority of BNSF's traffic exclusions.

Although BNSF designed the OTRR to handle a much smaller traffic group than OTP's design, BNSF has not presented any evidence whatsoever regarding the operating plan, operating expenses, or road property investment that would be necessary to handle the traffic levels that OTP has included on the OTRR. A very similar situation arose in WPL, where the Board rejected UP's generalized arguments for additional investment, because UP had failed to specify the extent, size and use of the additional investment; and instead, the Board adhered to WPL's evidence.[128] The Board should follow that precedent in this proceeding as well.

b. OTP has presented a reliable model to verify its operating plan for the OTRR.

OTP's string model confirms that the OTRR has sufficient capacity to handle its traffic volumes. Although BNSF vehemently attacks the reliability of the string model, it does not present any alternative evidence of the capacity needed to handle the traffic posited by OTP. At the very least, BNSF's criticisms are grossly exaggerated examples of cataclysmic "collisions" and "overloaded sidings," and at worst, they are deliberate misrepresentations of the string model in order to undermine its credibility with the Board.

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[128] See WPL at 15, 61, and 65-66.

At the outset, this is not the same string model that the Board rejected in TMPA because the complainant failed to document how the model operates.[129] This is a later version of that model, which has been updated in response to issues raised in TMPA and subsequent cases. Moreover, this string model is fully documented and, to the extent Board staff have any additional questions, OTP offers to conduct a tutorial on the operation of the string model.

A computer model need not perfectly replicate the real world to be reliable. The ICC previously observed that no model can perfectly recreate the real world:

> our search here is for a model that is reliable . . . but that is not so cumbersome (by attempting to mimic every possible detail of the real world) as to be practically unusable in a real rate case.

NPRC, at 871-72.[130] BNSF acknowledged this point in its statement that "A proper simulation model attempts to produce a picture of real operations through the use of simplifying assumptions based on the average time for particular events."[131] This is precisely what OTP's string model does.

The string model flows trains through the OTRR system based on inputs such as loading time, train length, train weight, locomotive tractive effort, track curve and grade, speed limits, and delay times for interchange, servicing and inspections. The string program operator evaluates the program output to identify train conflicts and determines whether to address them by manually intervening (as a dispatcher does in the real world) or adding infrastructure. OTP presented a full explanation of this process in OTP Opening at III-C-19 to 21 and Exhibit III-C-2. The string model is an effective modeling tool for a SAC case because it allows the SARR designer to minimize total costs by making

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129 TMPA at 31-32, 67-68.

130 National Railroad Passenger Corp. and Consolidated Rail Corp. - Application Under Section 402(a) of the Rail Passenger Service Act for an Order Fixing Just Compensation, 10 I.C.C. 2d 863 (served Dec. 29, 1995) ("NPRC").

131 BNSF Reply at II.B-30.

manual interventions that avoid the need to add expensive infrastructure. These manual interventions are made everyday by real-world train dispatchers.

BNSF criticizes the string model precisely because it allows manual interventions.[132] BNSF contends that this process is prone to error, that OTP improperly does not rerun the string program after making manual interventions, and that there is a disconnect between the data in the files that OTP consults to make the manual interventions. Each of these criticisms is addressed in Part III.B.4.e.i., infra.

BNSF's first criticism, however, that the manual intervention process is prone to error, deserves special attention because it asks the Board to reject the string model simply because it is too much work to verify OTP's evidence. Although BNSF claims it is too much work for the Board, it really means that it is too much work for BNSF, since any errors would be exposed through the adversarial process. This process is no different for any other SAC evidence and BNSF has not given any reason why operating plans should be treated any differently.[133] In any event, BNSF has conducted such a review of OTP's string model in this case and identified only four purported conflicts, which OTP has resolved in this Rebuttal Evidence. Furthermore, BNSF's argument would deny OTP the ability to make the same types of manual interventions that BNSF makes in its real-world dispatching operations. In essence, BNSF seeks to deny OTP the opportunity to design the most efficient SARR, which is contrary to the most fundamental of SAC principles.

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[132] BNSF Supp. Reply at III.B-3 to 5.

[133] BNSF's logic also would require the Board to reject the RTC Model because all of its inputs must be entered individually, *i.e.* no batch entry, which is extremely laborious and time consuming for a complainant that wants to modify the RTC model on rebuttal.

Another BNSF attack also deserves special attention because BNSF disingenuously faults the string model for something that is endemic to the SARR modeling process. [134] Namely, BNSF faults the string model for not linking loaded and empty trains at the origin coal mines. The string model starts with the real-world mine departure times for loaded trains. However, because the OTRR is more efficient than the real-world BNSF, the empty trains return to the mine sooner, which leaves them appearing to wait at the mine for an extended period until the next real-world departure time. This disconnect cannot be avoided unless actual loading times are ignored. Although BNSF pretends to avoid this problem with its RTC Model, it only shifts the problem to the off-SARR portions of each movement over connecting carriers by starting with the real-world departure times for empty trains from the destination.[135] OTP should not have to build capacity to hold the empty trains at the mines until the real world departure time any more than the residual BNSF should have to construct such capacity at the destination to hold empty trains until their real-world departure times. Any such requirement would penalize the OTRR for being more efficient than the real-world BNSF.

BNSF also alleges that the string model allows T-bone collisions, allows trains to enter full sidings and yards, and allows improper train speeds, acceleration and speed fluctuations. OTP responds to each of these criticisms in Parts III.B.4.e. and III.C.2, infra. OTP rejects BNSF's T-bone collision argument because BNSF has incorrectly described the operation of the string model. BNSF also vastly overstates the number of trains allowed into full sidings and yards; and manual interventions resolve the remaining occurrences. OTP has corrected the locomotive tractive effort, train weights, curve resistance issues, and spur time issues, but rejects all of BNSF's other criticisms.

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[134] See Part III.B.4.e.ii., infra.

[135] BNSF also obscures this problem by not modeling the entire OTRR. As discussed in the next section, that causes much more real and serious linking problems that render BNSF's model unreliable.

In contrast to TMPA at 68, note 112, OTP has provided both documentation of the string model and full explanations of its rebuttal changes to enable the Board to determine that OTP's revisions solve the few legitimate problems raised by BNSF.

Finally, it is important to keep in mind that the purpose of a string model is to verify basic operating and investment assumptions. By modeling the peak day in the peak year of the OTRR's operations, OTP has presented a very conservative SAC case. In reality, railroads do not build infrastructure, hire personnel, and purchase equipment to handle the peak case scenario. Rather, they make temporary adjustments through manual dispatching, hiring temporary employees or restricting employee time off, and leasing extra equipment on a short-term basis. Therefore, even if the string model were to slightly underestimate the OTRR's peak capacity needs (which it does not), that would not render it unreliable to develop the OTRR's operating plan.

c. BNSF's RTC Model does not provide competent evidence of an operating plan for the OTRR.

In contrast to OTP's string model evidence, BNSF has not provided the source code for the RTC model. As a consequence, although BNSF has availed itself of the opportunity to review and critique the string model, OTP has had no such opportunity to critique the RTC model. Nevertheless, BNSF asks the Board to accept the RTC Model because it is used by the rail industry. However, BNSF has not presented any evidence that the industry has used the RTC model to construct a rail line from the ground up. Rather, BNSF's evidence shows only that the model has been used principally to test changes in a rail line's configuration or the impact of incremental traffic on a line. In contrast, a SAC analysis is a much different and more complex process that attempts to design an optimally efficient, least cost stand-alone railroad from the ground up.

BNSF itself does not use the RTC Model to model the entire OTRR. Instead, BNSF separately models only three segments of the OTRR: Converse-Gillette, Snowden-Fargo, and Fargo-Big Stone.[136] Only the latter two segments are contiguous. To complicate matters, in its Supplemental Reply Evidence, BNSF remodeled the first two segments, but not the third segment. For the remaining unmodeled segments, BNSF accepts OTP's operating plan based on the string model. As a consequence of BNSF's failure to model the entire OTRR, trains disappear between segments; trains that don't disappear cannot be linked; and for trains that can be linked, they leave one segment and appear at the next segment either before or after their predicted actual departure time on that segment.[137] BNSF's failure to model the entire OTRR renders its RTC Model analysis unreliable because what happens on one part of a system will impact all the other parts of that system.

BNSF's RTC Model also contains many of the same, or similar, flaws that BNSF alleges are present in OTP's string model. For example, BNSF uses incorrect horsepower ratings for SD70MAC locomotives; trains instantaneously stop and start, leading to impossible rates of acceleration and deceleration; and BNSF uses inconsistent inputs between different simulation segments.[138]

In the final analysis, however, BNSF's failure to provide the source code to the RTC Model, by itself, renders the model unuseable in this case. On numerous occasions, the Board has rejected computer models when the sponsoring party has failed to produce the underlying source code.[139] In

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136 BNSF performed only an abbreviated simulation of the Fargo-Big Stone segment by running one loaded and one empty coal train to develop transit times. This abbreviated simulation has no probative value.

137 See Part III.B.4.c., infra.

138 See Part III.B.4.c., infra.

139 The Board's standards are consistent with the standard applied by federal courts to the admission of computer-based evidence. E.g., United States v. Dentsply International, Inc., 277 F. Supp. 2d 387, 435-39 (D. Del. 2003) (Excluding evidence because plaintiff's failure to provide source code for survey software prevented defendant from inspecting computer instructions); NAACP v. A.A. Arms, Inc., 2003 U.S. Dist. LEXIS 8111 at *5 (E.D.N.Y. May

NPRC, the ICC announced "certain minimum standards" that future computer models would have to meet, including a requirement that "Models submitted as a stand-alone, executable file must be accompanied by the source code.[140] Similarly, in Utility Fuels, Inc. v. Burlington Norther R.R. Co., ICC Docket No. 39002, Slip Op. at 7 (served July 18, 1984) [internal citations omitted], the ICC held that whenever "a party is submitting computer evidence, it is important that the underlying data used in the analysis (including programs and programming method, and all relevant computer inputs and outputs) be made available." BNSF's failure to produce the source code for the RTC Model means that BNSF's operating plan evidence is untested, potentially unreliable, and therefore unuseable in this case.

3. The OTRR's Operating Plan and Expenses are Fully Explained and Supported by Otter Tail's Evidence.

Otter Tail's presentation of operating expenses for the OTRR follows from the premise that the complainant's burden is to develop a feasible, least cost, most efficient competitor to the incumbent. Therefore, locomotive, railroad-owned freight car, and personnel requirements for the OTRR incorporate and apply innovative railroading practices, designed to capture and leverage reasonably available efficiencies, while meeting the needs of the OTRR's operating plan. Manifestly, Otter Tail did not attempt to replicate BNSF's current operations and operating practices.

BNSF's critique of Otter Tail's operating expenses is fundamentally defective because it merely projects BNSF's existing operations onto the OTRR without even remotely acknowledging the assumption that the stand-alone carrier achieves, and benefits from, optimal efficiency. BNSF's self-reverential approach artificially inflates the OTRR's operating costs and thereby defeats the

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[140] NRPC at 887-88, note 68.

purpose of developing a hypothetical competitor. BNSF wrongly attacks Otter Tail's development of operating expenses of the OTRR in four key areas: (1) Locomotives and equipment; (2) Operating Personnel; (3) General & Administrative Personnel; and (4) Maintenance of Way ("MOW") expenses. At sections III-C and III-D of this Rebuttal, Otter Tail exposes the flaws of BNSF's critique, which it summarizes here.

BNSF's criticisms of Otter Tail's locomotive evidence are unfounded. First, BNSF vastly overstates the number of locomotives needed by the OTRR to the point that, even at the vastly reduced traffic levels that BNSF includes on the OTRR, BNSF's SARR requires more locomotives. Although some of this difference is attributable to the parties' various operating assumptions, much of it is due to differences in spare margin and peaking factors.[141] BNSF inflates its locomotive count by applying an excessive spare margin that ignores lower spare margins in its own maintenance contracts, and by applying an unjustified peaking factor that would require the OTRR to acquire a fleet of equipment to meet its single peak day needs, rather than lease additional equipment on a short-term basis to meet its peak needs.

Second, BNSF compounds the consequences of its overstated locomotive requirements for the OTRR by wrongly asserting that the OTRR's costs of leased locomotives are unrealistically low. In fact, BNSF's method of calculating costs for the majority of the OTRR's locomotives, which is inconsistent with TMPA,[142] overstates lease costs by 30 percent.[143] For other locomotives, BNSF simply asserts that the OTRR could not obtain rates less than those paid by BNSF. With respect to

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141 See Part III.C.2.e., infra.

142 TMPA at 79.

143 See Part III.D.1.a., infra.

maintenance costs, BNSF, among other things, assumes a lower locomotive utilization, which results in a higher mileage rate, and improperly adds labor charges into overhaul costs.[144] Additionally, BNSF double counts fuel costs for switching operations.[145]

For the same reasons that BNSF overstates locomotive requirements, it also overstates the OTRR's railcar requirements.[146] In addition, BNSF overstates railcar costs. In its Opening Evidence, OTP rationally developed full service leases based on examples found in *Railway Age* and net leases produced by BNSF in discovery. In its Reply, BNSF again followed a self-reverential approach, assuming (without justification) that the OTRR could not obtain lease rates better than its own.[147] Moreover, for the purpose of inflating operating costs, BNSF wrongly mis-characterized full service leases, so as to exclude maintenance, and recalculated railcar maintenance costs, so that the cost of maintaining a car is almost as much as the lease rate itself.[148]

BNSF essentially accepts OTP's development of personnel requirements and wages for the OTRR. The only significant differences are BNSF's vastly inflated train crews, which is the result of BNSF's requirement that the OTRR hire full-time crews to handle its peak day traffic; BNSF's addition of Yardmasters and Crew Haulers/Utility Clerks; and BNSF's oversized Marketing and Finance & Accounting Departments. Where BNSF adds staff, or increases salaries, it does so either without proper justification, or simply without any explanation at all. For example, BNSF's addition of 40 crew haulers to Operating Personnel is entirely superfluous because it duplicates the taxi service

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144 See Part III.D.1.b., infra.

145 See Part III.D.1.d., infra.

146 See Part III.C.2.f., infra.

147 See Part III.D.2.a.ii.(a), infra.

148 See Part III.D.2.a.ii.(b), infra.

expense that OTP already included.[149] Similarly, with respect to G&A staffing, BNSF improperly inflates the OTRR's marketing department by 20 persons, when the OTRR, in fact, originates only coal and has only one merchandise customer, BNSF.[150] Thus, the OTRR has no need for a marketing department capable of handling hundreds of customers across a range of industries.[151] Indeed, BNSF's overstaffing in Operating Personnel and G&A, creates redundancy and produces substantial idle time for OTRR employees. Moreover, OTP's development of compensation is rationally derived from BNSF's Wage Forms A and B, or other evidence in the record, and its results are consistent with other "real world" carriers.[152] BNSF, by contrast, posits compensation that often exceeds its own purported "real-world" figures.[153] Plainly, BNSF's approach is at odds with the concept of a least cost, most efficient railroad, and must be rejected.

BNSF's critique of OTP's development of maintenance-of-way costs deliberately rejects the premise that the complainant's stand-alone railroad need not replicate the incumbent. Instead of following OTP's approach of using an economical and efficient work force to address day-to-day problems and using contractors for programmed maintenance, BNSF develops the OTRR's MOW costs by providing nearly all the personnel, equipment, and materials for both spot and program maintenance. BNSF assigns approximately half of annual normalized MOW costs to spot maintenance, arriving at a whopping figure of $71.4 million (versus $18.7 million for OTP). At 46.5

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149 See Part III.D.3.a.i.(c), infra.

150 See Part III.D.3.c.i.(f), infra.

151 In its Supplemental Reply Evidence at III.D-13, BNSF retains this excess staffing despite its decision to eliminate most of the OTRR's general freight traffic.

152 See Parts III.D.3.a.iii and III.D.3.c.ii., infra.

153 See, Part III.D.3.c.ii., infra.

percent of total maintenance of way expenditures, BNSF's calculation of spot maintenance for the OTRR compares unfavorably to its own percent, based on its 2002 R-1 Annual Report.[154]

In Part III.D.4 of this Rebuttal, OTP demonstrates that BNSF's maintenance of way analysis is unrealistic and that its figures are inflated. As Vice President-Engineering of C&NW and Vice President / Chief Engineer WRPI, OTP's expert witness, Mr. Richard McDonald, has ample real world experience in this area. OTP's construction of the OTRR and its maintenance program are closely modeled on the WRPI. Both matters are directly within Mr. McDonald's "real world" expertise. Essentially, the OTRR will complement its basic forces with scheduled contract forces, an efficient approach that is prevalent in the industry today. The OTRR's personnel will be cross-trained, fully equipped, and highly mobile to provide sufficient manpower to meet day-to-day maintenance needs. The OTRR will handle, *inter alia*, (i) inspection of the right of way, track, signal, and bridges, (ii) replacement of broken rails, (iii) servicing of switch machines, switch heaters, rail lubricators, and signals, (iv) clearing of culverts, and (v) spot tie and fastener replacement. It will contract out programmed replacement of rails, weed spraying, rail grinding, rail geometry testing, ultrasonic rail testing, heavy snow removal, and other miscellaneous items. In stark contrast to BNSF's plan (and consistent with modern railroading), the OTRR's managers will not manage other managers; its supervisors will not supervise other supervisors; and, its workers will not duplicate their co-workers.

4. BNSF Grossly Exaggerates the Required Investment for the OTRR.

If the Board were to look only at the investment figures presented by BNSF, it would think this case concerned the rates of an eastern railroad. The total investment per mile bears absolutely

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[154] See Part III.D.4.a. and c., infra.

no resemblance to the investment in prior western cases, while they look eerily similar to recent eastern cases. BNSF simply has disregarded all Board precedent in an effort to inflate the investment cost of the OTRR beyond any rational level.

a. BNSF's land valuations bear no relationship to its comparable sales data.

In this Rebuttal, OTP makes only minor adjustments to the land acres and values that it offered in its Opening Evidence.[155] This is because OTP's approach remains fundamentally sound. OTP's expert ascertained the land necessary for the OTRR's operations, inspected the right of way and categorized its acreage into land use types, identified relevant land sales data, and estimated "Across the Fence" values for the OTRR land based on unit prices. Taking into account minor adjustments, OTP's total acreage is 15,697 acres, which carries a total value of $46.6 million, as of the first quarter 2002. OTP's Rebuttal Evidence differs from its Opening by an additional 23 acres and $13.3 million.

BNSF's critique of OTP's evidence is designed to artificially inflate the OTRR's required acreage and the value attached to that acreage. The significant areas of disagreement are: 1) major urban areas; 2) the line between Donkey Creek, Wyoming and Jones Junction, Montana; 3) the Orin Line in Wyoming; and 4) selected smaller towns. In the midst of *ad hominem* attacks against OTP's expert witness, BNSF's expert posits his own purportedly reliable method of valuing OTRR land. Under close inspection, however, BNSF's critique collapses because its valuations seldom bear any resemblance to comparable land sales data identified by its expert and contained in its Reply exhibits. The invective laced throughout BNSF's presentation cannot disguise, or remedy, this fundamental shortcoming.

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155 See Part III.F.1., infra.

OTP's formulation of land value for the OTRR is the best evidence of record. Its minor Rebuttal adjustments, which incorporate data gathered but misapplied by BNSF, reflect reasonable adjustments. Accordingly, it is proper for the Board to accept OTP's evidence and to reject BNSF's submission.

b. OTP presents the most credible road property evidence.

With the guidance of several expert witnesses, OTP has carefully designed the road property investment needed for the OTRR. OTP based the road property investment of the OTRR on an efficient design in keeping with the Coal Rate Guidelines goal of a least-cost, most efficient carrier. Mr. Richard McDonald, OTP's chief engineering witness, was intimately involved with the construction of the WRPI line in the late 1970's and, in many cases, OTP followed the construction parameters of the WRPI line.[156] Where the WRPI specifications were inappropriate, OTP looked to information gained from BNSF in discovery, the opinions of OTP's witnesses, or other sources in the rail industry. OTP also relied on specifications used in prior SAC cases. These prior SAC cases represent not only established Board precedent, but also recent examples of what a most-efficient, least-cost carrier built from the ground up would look like.

In total, OTP has provided approximately $2.59 billion for the road property investment of the OTRR, a slight increase from Opening due to certain modifications in response to selected criticisms of BNSF.[157] This road property investment is $1.45 million per track mile, a figure similar to road property investment in prior Western SAC cases.[158]

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156 OTP Rebuttal at III-F-1 to III-F-2.

157 OTP Rebuttal at III-F-3, Table III-F-6..

158 In TMPA, the Board adopted $1.701 million per track mile. TMPA at 68, 70, and 111. Other recent figures include $1.594 million (WPL at 62 and 74) and $1.399 (FMC at 39-40 and 108).

Conversely, in its Reply Evidence, BNSF advocates road property investment of $2.58 million per track mile, a figure never approached in any prior Western SAC case.[159] BNSF's road property investment figure is so high that it approximates the cost of building a coal-hauling railroad in the Eastern U.S., where construction is much more expensive due to higher land values and the rugged Appalachian terrain.[160]

The major differences between OTP and BNSF in road property investment are in the roadbed preparation category.[161] BNSF has grossly overstated various roadbed preparation items. For example, BNSF has submitted an inflated calculation of earthwork quantities for three key mine branch segments of the OTRR that were constructed after the ICC Engineering Reports survey. At Part III.F.2.b.ii, infra, OTP explains how BNSF relied on unproduced computer programs in calculating earthwork for these line segments, meaning that OTP was unable to evaluate and test BNSF's evidence.

In contrast, OTP fully produced the CARDS earthwork program that it used to calculate earthwork for these same three mine branches. This program was accepted by the ICC in Coal Trading[162] and provides a good fit for the SAC process, since it allows the CARDS operator to attempt to efficiently balance cuts and fills, thus minimizing earthwork requirements. In fact, BNSF criticizes OTP's use of the CARDS program for exactly this reason - BNSF sees something sinister in OTP's efficient use of CARDS.[163]

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159 BNSF Reply at III.B-4 and III.F-2.

160 The Board, in Duke/NS at 47 and 86, adopted road property costs of $2.61 million per track mile.

161 See Part III.F.2, Table III-F-10, infra.

162 Coal Trading, 6 I.C.C. 2d 361, 419 (1990) ("Coal Trading").

163 BNSF Reply at III.F-70.

In addition to the differences between the parties on earthwork quantities, the parties also differ in the calculation of unit costs applicable to the OTRR earthwork. OTP based its unit costs on established Board precedent from other Western cases, while BNSF inflates unit costs by using unnecessarily expensive equipment, by including extra steps in the grading process, and by increasing costs due to various soil issues.[164] For example, BNSF included extra dozers at several places in the construction process. As OTP explains at various places in Part III.F.2.b.iv., infra, these dozers are unnecessary. As a second example, BNSF inflated unit costs and ignored Board precedent when it chose not to use the bulk drilling and blasting cost proposed by OTP for solid rock excavation.[165] In sum, OTP's unit costs represent efficient, feasible construction methods.

BNSF's roadbed preparation figures are also unnecessarily high because BNSF included several superfluous and redundant construction costs and steps that have never before been included in any SARR construction or already are reflected in other cost categories. OTP explains how BNSF's attempt to interject new costs such as foundation conditioning, fine grading, and a winter construction premium into the SAC analysis is improper.[166]

Beyond the category of roadbed preparation, the major road property differences between the parties are in bridges and track construction. As explained in its Opening Evidence at pages III-F-38 to III-F-39, OTP developed its bridge costs based on dividing all OTRR bridges into three classes, developing an average cost per lineal foot for each bridge in the class, and then applying this average

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164 See, Part III.F.2.b.iv., infra.

165 See, Part III.F.2.b.iv.(c), infra.

166 See Parts III.F.2a.iii., III.F.2.b.iv.(f), and III.F.2.b.iv.(g), infra.

cost to each bridge. BNSF disagrees with this bridge classification and averaging methodology for various reasons, but these criticisms are without merit, as OTP explains in Part III.F.5.b., infra.

BNSF also disagrees with the specific bridge designs developed by OTP's bridge expert, Dr. Vinaya Sharma. In some cases, OTP has agreed with the suggestions and criticisms of BNSF. For example, OTP has added deck expansion joints and deck waterproofing to its bridge designs on Rebuttal. For the most part, however, BNSF is simply advocating unnecessary design features or specifications that it does not even use in the real world.[167]

The last major area of road property investment difference between the parties is in track construction costs. The parties remain over $140 million apart. The cost of sub-ballast is the single largest area of contention. OTP relied on the sub-ballast cost included in a BNSF Authority for Expenditure produced in discovery, but BNSF has attempted to impeach this AFE and instead substitute more expensive sub-ballast from locations much further from the OTRR route. As OTP explains at Part III.F.3.b.ii, infra, BNSF's arguments on this point are without merit. There is no reason not to use the sub-ballast cost from BNSF's Wyoming AFE; compared to the other sub-ballast AFE's, the Wyoming AFE is the closest to the OTRR route.

Another major difference in track construction costs is for switches. BNSF has vastly overstated the number of turnouts needed by the OTRR; it has double counted turnout installation costs; and it has overstated the number of insulation joints and switch stands.[168] This is just another example of BNSF inflating OTP's reasonable construction costs.

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167 See, Part III.F.5.c, d., e., and h., infra.

168 See Part III.F.3.f., infra.

D. ALTHOUGH BNSF CONCEDES TOTAL MARKET DOMINANCE, IT CONTINUES TO OVERSTATE ITS VARIABLE COSTS.

In its Opening Evidence, BNSF conceded quantitative market dominance over the Big Stone movement with R/VC ratios that BNSF calculated to range from 216% to 236% on movements originating at the Belle Ayr and Eagle Butte Mines.[169] BNSF has made further adjustments to variable costs in its Reply Evidence that reduce its R/VC calculations to a range from 213% to 232%, still well-above the 180% threshold for quantitative market dominance.[170] The precise level of the R/VC ratio remains important, however, because it represents the minimum rate that the Board may prescribe. If the SAC rate is below the R/VC, or jurisdictional threshold, rate the Board may prescribe only a rate at the jurisdictional threshold level. OTP demonstrates in Part II.A.1. of this Rebuttal Evidence that even BNSF's extremely high R/VC ratios are significantly understated, which in turn overstates the jurisdictional threshold rate.

By far, the single greatest factor contributing to the differences in the parties' calculation of variable costs continues to be road property return and depreciation expenses, which OTP addresses in Part II.A.1.b.ii.(a) of this Rebuttal Evidence. This is the leading example of BNSF's attempt to push variable costs up to system average levels. For years, BNSF has made movement-specific adjustments to its road property return and depreciation expenses in SAC cases, using the same data that OTP has used in this proceeding. Suddenly, BNSF claims to have discovered that this data is

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169 BNSF Opening at I-2 and Ex. II-A-1. BNSF has calculated variable costs only for the Belle Ayr and Eagle Butte Mines from 1Q02 through 1Q03, since those mines were the source of most of the coal transported to Big Stone over that period. OTP, however, has challenged the reasonableness of the rates in BNSF 90062 as they apply to all thirteen mines in the tariff. Therefore, OTP's opening and reply evidence also calculated variable costs for the Cordero and Caballo Rojo Mines in 4Q02, since coal actually moved to Big Stone from those mines in that quarter, and for all thirteen mines in 1Q03. OTP Opening at II-A-4 and Exhibits II-A-7 through II-A-19; OTP Reply at II-A-50 and Ex. II-A-21.

170 BNSF Reply at II-64.

no longer reliable for this purpose. OTP, however, has responded to each of BNSF's objections by developing a procedure that continues to produce movement-specific costs that are "demonstrably superior" to system average. This procedure is the same one that the Board accepted over BNSF's objections in TMPA.[171]

BNSF repeats many of the same arguments against the use of its own road property investment return and depreciation data that OTP already has addressed in its opening and reply evidence, and will not repeat on rebuttal. However, BNSF's reply evidence raises several new, but equally spurious, arguments that OTP has not yet addressed.

As a general matter, BNSF criticizes its own reasonable procedures for allocating investment to specific line segments. But, BNSF ignores the fact that a reasonable allocation, although not perfect, still is demonstrably superior to system average costs, which simply spreads investment evenly over the entire BNSF system without any attempt to allocate them to regions where the investment actually was made. Among BNSF's other arguments, first, BNSF completely misquotes the testimony of OTP's variable cost witness Plaistow in the AEPCO rate case as evidence that Mr. Plaistow has taken conflicting positions on the reliability of BNSF's road property data to make movement-specific adjustments to system average costs. Second, without any supporting evidence whatsoever, BNSF argues that TMPA did not address fundamental problems with BNSF's data and OTP's methodology. Third, BNSF claims that the Board did not address use of BNSF's depreciation calculator in TMPA. In addition to this statement being flatly wrong, OTP's methodology does not even use the depreciation calculator. Fourth, BNSF attempts to further denigrate its PISNU data by claiming that PISNU investments are likely more expensive than the assets that they replaced. If this

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[171] TMPA at 56-57.

is true, only BNSF has the data to prove it, and BNSF has not placed any such evidence in the record. Lastly, BNSF claims that OTP uses data that excludes yard investment. Although this claim does not appear to be correct, even if it is true, OTP clearly requested, and the Board ordered, BNSF to produce complete road investment data in discovery, and OTP relied upon BNSF's representation that the data was complete. Because OTP used all the investment data produced by BNSF, it is procedurally improper and prejudicial to allow BNSF now to assert that the data is incomplete.

The next area of greatest difference between the variable cost calculations of OTP and BNSF is locomotive maintenance, which OTP addresses in Part II.A.1.b.ii.(b) of this Rebuttal Evidence. This is another area where BNSF attempts to force the Board to use system average costs. This Rebuttal responds only to BNSF's reply arguments that OTP has not previously addressed.

BNSF's Reply raises four criticisms of OTP's calculation. First, BNSF incorrectly claims that OTP failed to account for non-routine locomotive maintenance costs, when in fact, OTP used system-average non-routine maintenance costs, just as BNSF did. Second, BNSF claims that OTP fails to account for overhaul expense:

The Board has held that "the variable cost associated with the overhaul of locomotives should only be included in the year the maintenance takes place."[172] Third, BNSF erroneously claims, based upon the actual SD70 miles in *all services*, that OTP has misapplied BNSF's maintenance contracts. OTP, however, used a superior movement-specific approach that relies on the actual SD70 miles in Big Stone service. Fourth, BNSF makes the highly dubious claim that there is no reason to expect the maintenance costs of Big Stone locomotives to be less than

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[172] APS, 2 S.T.B. at 425.

system average costs. After correcting BNSF's analysis to make an apples-to-apples comparison, OTP uses BNSF's own data to disprove this assertion.

The third largest difference in variable costs is locomotive capital costs, which OTP addresses in Part II.A.1.b.ii.(c) of this Rebuttal Evidence. This difference is due primarily to different approaches to developing spare margins, lease costs, and average acquisition costs. Most of BNSF's arguments already have been addressed by OTP's opening and reply evidence. OTP will not repeat those arguments here.

BNSF raises four criticisms of OTP's spare margin calculation, three of which OTP rejects. First, BNSF asserts that reliance on its maintenance contract availability guarantees is improper [redacted]. OTP, however, has demonstrated that none of those events occurred during the relevant time period and that BNSF's own data on actual locomotive availability in 2002 shows an actual spare margin of [redacted] for all SD-70 locomotives in the Alliance Pool, [redacted]. Second, although BNSF attempts to undermine OTP's reliance on the availability guarantees in [redacted] maintenance contracts, which BNSF states were temporarily suspended during the relevant time period, BNSF ignores the existence of similar guarantees in its contracts with [redacted] other contractors. Third, OTP accepts BNSF's criticism relating to the applicability of the [redacted] agreement in the first quarter of 2003. Fourth, BNSF incorrectly asserts that spare margin should be expressed as a percentage of the actual available time, rather than a percentage of total locomotive hours. This position, however, is contrary to the Board's definition of "spare margin" in WTU, 1 S.T.B. at 690, note 109:

> Spare margin consists of the additional engines needed to provide service when other locomotives are unavailable.

OTP previously has responded to both of BNSF's objections to OTP's development of locomotive lease costs. In its Reply at II-A-32, OTP refuted BNSF's claim that lease costs should be based on the average lease rate over the life of the lease, rather than the lease rate during the time period being costed, because the Board previously rejected BNSF's approach in WPL at 57. In addition, at pages II-A-17 to 20 and II-A-32 of its Reply, OTP addressed BNSF's claim that OTP failed to use the lease costs of the actual locomotives that powered the Big Stone trains. There, OTP explained that it in fact had used the actual locomotives in Big Stone service to weight each locomotive type in the calculation of capital costs, whereas BNSF's methodology assumes that locomotives used for only a few weeks during a year are used throughout the entire year. This argument, along with OTP's Reply at II-A-34 to 35, also responds to BNSF's claims regarding OTP's calculation of average acquisition costs.

The fourth major area of difference in variable costs is maintenance-of-way ("MOW"), which OTP addresses in Part II.A.1.b.ii.(d) of this Rebuttal Evidence. Since the Board rejected SFGT in the TMPA decision, at BNSF's urging, BNSF has defaulted to system average MOW costs. OTP, on the other hand, has made appropriate line-specific adjustments. This is yet another example of BNSF's drive towards system average costs by attempting to discredit its own data. In the case of MOW costs, BNSF contends that its engineering cost center data does not tie to BNSF's R-1, but it does not seriously challenge OTP's methodology.

BNSF claims that OTP's line-specific adjustments contain several errors, most of which OTP rejects. First, BNSF incorrectly claims that OTP included line segments that are not on the issue route. BNSF, however, has mis-identified the issue traffic in this case, which OTP addresses in greater detail in Part III.A.1.b.i, infra, and Part I.C.1.b.i, supra. Second, BNSF attempts to discredit

OTP's line-specific analysis by pointing to alleged deficiencies in the data that BNSF produced to OTP in discovery. But, BNSF itself refused to produce the additional data that OTP needs in order to respond to BNSF's claims. Furthermore, BNSF failed to produce any workpapers to support its claims, in response to a specific workpaper request from OTP. Third, BNSF claims that OTP's ratio of running MOW monies to total (running and switching) MOW monies is flawed because the data that BNSF produced to OTP does not include switching expenses. But, OTP specifically requested *total* MOW monies in discovery and BNSF never indicated that it had produced anything less. When OTP attempted to obtain this information through a workpaper request, after reading BNSF's Reply Evidence, BNSF refused. The Board has stated that shippers cannot be faulted for not including data that was not provided to it by the railroad.[173] Fourth, BNSF criticizes OTP's adjustment of line-specific MOW cost center expense data produced in discovery to match the MOW expenses reported in BNSF's R-1, Schedule 410. BNSF, however, refused to provide the system MOW expenses that are captured in all line-specific supervisory, regional or system costs centers, which would allow OTP to respond to BNSF's criticism. Fifth, BNSF criticizes OTP for using only one year of data in its MOW cost analysis. Although OTP explained in its Opening Evidence at II-A-26 to 27 that BNSF produced incomplete and unusable data in other years, BNSF's Reply completely ignores this fact. Lastly, BNSF criticizes OTP for not considering that Big Stone coal traffic is heavy-wheel load and therefore causes more damage to track structures. But, the Board previously has noted that there is "no evidence that wear rates and maintenance costs are directly related."[174] BNSF has not provided any such evidence in this proceeding either. In general, BNSF does not take issue with OTP's

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173 WPL, Docket No. 42051, Slip Op. at 17 (served May 14, 2002).

174 WPL at 51.

methodology for adjusting system average MOW costs, but instead attempts to discredit its own data. Although only BNSF possesses the data to prove or disprove its contentions, it has refused to produce it to OTP. Therefore, OTP's line-specific analysis of MOW costs is superior to BNSF's use of system average.

The final significant difference in the parties' calculation of variable costs is crew wages, which OTP addresses in Part II.A.1.b.ii.(e) of this Rebuttal Evidence. While both parties have developed crew wage costs based on BNSF payroll data, OTP also relies upon sample Train Activity Reports ("TARs"), while BNSF relies upon generalized statements from field personnel, which results in a significant overstatement of crew wage costs. BNSF's reply evidence overstates crew wage costs in six categories. First, BNSF misinterprets the TAR data and overstates loading crew wages for trains originating at Eagle Butte. Second, BNSF introduces a new, unsubstantiated "Productivity Fund" wage payment, even though the payroll data produced in discovery included all wage payments for any employee who worked on at least one Big Stone train. Third, BNSF fails to adjust the wages for obvious instances where Big Stone crews performed work for other BNSF shippers. Fourth, BNSF fails to adjust the wages for obvious errors in the payroll data. Fifth, BNSF overstates the wages attributable to Big Stone traffic for road switch crews. Finally, BNSF develops its non-train related mark-up percent using a mathematically flawed methodology that the Board previously has rejected.

Other areas of disagreement between OTP and BNSF in the calculation of variable costs include helpers, switching, carload originated and terminated-clerical, carload handling-other, expenses for loop track movements, train mile-other, car repairs-user responsibility, EOTD ownership, and loss and damage. Neither party has changed its position from prior evidence on these

costs. Together, these costs account for only 4% of the difference between the parties' variable cost calculation.

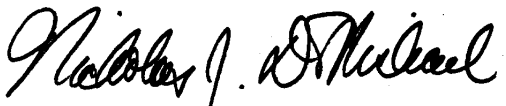
After correcting BNSF's empirical and methodological errors and updating OTP's reply evidence based on information obtained from BNSF's reply evidence, OTP has recalculated the R/VC ratios for all thirteen mines covered by BNSF 90062. The updated calculations are presented in Table II-A-27, infra. For the two principal mines from which Big Stone currently receives coal, the R/VC ratios from 1Q02 to 1Q03 range from 250% to 265% for Belle Ayr and from 249% to 272% for Eagle Butte. For the remaining eleven mines, the challenged rates produce R/VC ratios from 247% to 266%.

E. CONCLUSION.

For all of the reasons set forth herein and in the remainder of OTP's Rebuttal Evidence in this proceeding, the Board should conclude that BNSF possesses market dominance over the movement of coal from PRB mines to the Big Stone Station and that the rates for these movements in BNSF 90062 are unreasonably high. As such, OTP requests that the Board prescribe maximum reasonable rates for this transportation at the levels described in OTP's Opening Evidence, as modified by this Rebuttal Evidence, and award OTP reparations for the amounts BNSF has overcharged OTP since

January 1, 2002, when the challenged rates became effective, plus interest and any other appropriate relief.

Respectfully submitted,



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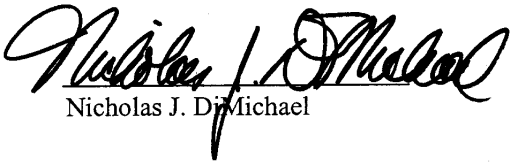
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April 29, 2004

CERTIFICATE OF SERVICE

I hereby certify that on this 29th day of April, 2004, I served a copy of Complainant's Rebuttal Evidence (Public Version) by hand delivery to counsel for Defendant at the following address:

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II-A
QUANTITATIVE MARKET DOMINANCE

II.A. QUANTITATIVE MARKET DOMINANCE

Otter Tail's Reply Evidence developed BNSF's variable costs of handling Otter Tail's coal traffic from mines in the PRB to the Big Stone Station using the agreed traffic and operating characteristics pursuant to Ex Parte No. 638 and using methodologies consistent with the procedures and findings of the Board and its predecessor in numerous prior coal and other maximum rail rate proceedings.[1] Variable costs as restated in Otter Tail's Reply were based on BNSF's 2002 URCS costs, with adjustments derived from data provided by Otter Tail, data reported by BNSF to the Board, information in the public record, information produced by BNSF in discovery, and data revealed for the first time in BNSF's Evidence and responses to Otter Tail's workpaper requests.

Otter Tail's cost restatements in this Rebuttal continue to use the Ex Parte No. 638 agreed traffic and operating characteristics and are now based on the Board's 2002 BNSF URCS. Base year 2002 URCS costs were indexed to each quarter from the first quarter of 2002 (that is, "1Q02") through the first quarter of 2003 (that is, "1Q03") wage and price levels. In addition to the various data sources listed above, Otter Tail's Rebuttal restatement also reflects information provided by BNSF in connection with its October 8, 2003 Reply filing.

BNSF's Reply Evidence on variable costs consisted of the testimony of its witnesses (1) Mr. Benton V. Fisher and Mr. Robert J. Plum III of FTI Consulting ("FTI") on the overall variable costs of the Otter Tail service; (2) Mr. Wilbert Kissner, BNSF's Trainmaster at Aberdeen, South Dakota, describing crew operations between Hettinger, North Dakota and Big Stone; (3) Mr. Dale W. Wagoner, Senior Manager Property Accounting-Systems and Control in BNSF's Finance

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[1] Case name abbreviations included in this Rebuttal are the same as those used in Otter Tail's Opening Evidence.

Department on BNSF's accounting procedures for maintenance-of-way ("MOW"); (4) Ms. Cami A. Elliott, a BNSF General Director, on the use of BNSF's Fixed Asset Data Base in the determination of roadway capital costs (included by reference at page II-44 of BNSF's Opening); and (5) FTI's Mr. John C. Klick on the variability of road property investment capital costs (also included by reference at page II-44 of BNSF's Opening).[2]

In this Rebuttal, Otter Tail responds to BNSF's Reply Evidence on variable costs and identifies the methodological and empirical errors that have led BNSF to continue to overstate the actual costs of providing unit train coal service to Otter Tail. Herein, Otter Tail shows that the best evidence of record supports Board jurisdiction to adjudicate the reasonableness of BNSF's common carrier rate to Big Stone. BNSF's evidence of record also supports Board jurisdiction to adjudicate these rates. (See BNSF Reply, Table II-A-6, page II-64). Specifically, at 1Q02 wage and price levels, the following Rebuttal variable costs per ton and revenue-to-variable cost ratios for the Belle Ayr origin rate in aluminum shipper cars, established in Common Carrier Pricing Authority BNSF- No. 90062 and 90062-A, reflect an R/VC ratio well in excess of 180%:

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[2] Both Otter Tail's Rebuttal and BNSF's Reply calculate variable costs for 1Q02 through 1Q03, although BNSF did not calculate variable costs for any origins other than Belle Ayr and Eagle Butte. While stated relative to BNSF's 1Q02 costs, the errors and overstatements outlined by Otter Tail in this Rebuttal apply generally to BNSF's methodology regardless of the time period to which the methodology was applied.

Table II-A-20 [3]	
Variable Costs and R/VC Ratios	
Belle Ayr Mine to Big Stone - 1Q02 [4/]	
1. Rate	$13.49 per ton
2. Variable Cost[4]	$5.09 per ton
3. R/VC Ratio	265%

1. Variable Costs

a. Summary and Findings

In its Reply Evidence,[5] Otter Tail identified nine (9) reasons why the Big Stone movement variable cost calculations contained in BNSF's Opening presentation were overstated. BNSF and Mr. Fisher, in BNSF's Reply, corrected some of these mistakes. Below, Otter Tail first lists the revisions that Mr. Fisher made to his development of variable costs on Reply; second, Otter Tail lists the Rebuttal revisions that Otter Tail has made to its Reply variable costs; third, Otter Tail summarizes the specific reasons why Mr. Fisher's revised Reply calculations must be rejected; and finally, Otter Tail compares its variable cost calculations in this Rebuttal with BNSF's variable cost calculations in its Reply.

i. BNSF's Revisions to Its Opening Variable Cost Calculations

On Reply, Mr. Fisher made the following revisions to BNSF's initial development of variable costs (See BNSF page II-3 and pages II-44 to 45):

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3 Tables II-A-12 through II-A-19 were included in Otter Tail's Reply Evidence.
4 See Table II-A-27.
5 Otter Tail Reply Narrative at II-A-3.

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1. Reflecting the agreed Ex Parte No. 638 traffic and operating characteristics. (See BNSF page II-3);

2. Modifications to crew wages to add additional loading crews at the mines – an additional 0.5 loading crews at Belle Ayr and an additional 1.0 loading crews at Eagle Butte. (See BNSF pages II-44 to 45);

3. Addition of payments to a

4. Adoption of Otter Tail's reductions to six crew wage records to reflect the fact that the crews worked on non-Otter Tail traffic in addition to working on Otter Tail traffic. (See BNSF pages II-49 to 50).

ii. Otter Tail's Rebuttal Revisions to Its Reply Variable Cost Calculations

In response to points raised, or further information provided, by BNSF in its Reply, Otter Tail's Rebuttal restatement reflects the following revisions to the development of variable costs in Otter Tail's Reply:

1. The effective date of the was changed to This affected both the calculations of Locomotive Maintenance Costs and the Spare Margin;

2. In the Maintenance of Way Cost calculation, Otter Tail corrected the calculation of gross ton-miles for three line segments;

3. Developed ratios of Otter Tail line specific maintenance of way costs to BNSF system average costs of for Eagle Butte origins, for Belle Ayr origins, and for all other Orin Line mines; and

4. Modified Crew Wage Costs to add back payments and removed one correction to BNSF's payroll records.

iii. BNSF's Reply Variable Costs Are Overstated and Should be Rejected

The principal flaws remaining in BNSF's determination of variable costs are as follows:

1. BNSF's road property investment return and depreciation costs (hereinafter "Road Property Capital Costs") are overstated because they are based on system average costs that make no adjustment for the service-specific, line segment-specific gross investment and depreciation data by valuation section provided by BNSF in discovery;

2. BNSF's Locomotive Maintenance Costs are overstated because they do not reflect the actual maintenance costs that may be derived from BNSF's leases and other related agreements;

3. BNSF's Locomotive Capital Costs are overstated because they are based on average lease payment rates and overstated spare margins, and they do not reflect the
   the pool of locomotives from which the Otter Tail service locomotives are drawn;

4. BNSF's Roadway Maintenance Costs are overstated because they are based on URCS system average maintenance of way costs, not those calculated using line-specific maintenance of way data. Likewise, BNSF's joint facility costs are overstated because they are based on system average joint facility costs, not those calculated using line-specific data;

5. BNSF's Crew Wage Costs are overstated due to a)
   . c) failure to reduce wages to account for the work that Otter Tail train crews
   l traffic, d) payroll system errors, e) overcharging for road switch crews, and f) a dramatic overstatement of the markup ratio applied to the wage data developed in a special study;

6. BNSF's Helper Service Costs are overstated because they are based on incorrect frequencies of helper service;

7. BNSF's Switching Costs are inflated because it's Switch Engine Minute Unit costs were developed using too few years of normalization;

8. BNSF's Loss and Damage Costs are overstated because they are based on system averages rather than specific cost information available from and produced by BNSF in discovery; and

9. The URCS formula that BNSF used was not developed in accordance with the Board's rules and procedures.

iv. Comparison of Otter Tail's Rebuttal With BNSF's Reply Variable Costs

Exhibit II-A-35[6] compares Otter Tail's Rebuttal calculations of variable costs with those included in BNSF's Reply. Exhibit II-A-36 lists the differences between the two and breaks down those differences by causal factor.[7] The Otter Tail variable costs included in Exhibits II-A-35 and II-A-36 source to Otter Tail Rebuttal Exhibits II-A-41 through II-A-53. Table II-A-21, below, summarizes the comparison of the two parties' variable costs for shipments in shipper-supplied aluminum cars:

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6 Exhibits II-A-1 through II-A-20 were included with Otter Tail's Opening Evidence. Exhibits II-A-21 through II-A-34 were included with Otter Tail's Reply Evidence.

7 See electronic files in variable cost subdirectory II-A\Var Costs\ "differences" documenting the calculations of differences by causal factor.

Table II-A-21

Comparison of Otter Tail's Rebuttal and BNSF's Reply
Variable Cost and Ratio of Rate to Variable Cost -Service In
Aluminum Shipper Cars to Otter Tail's Big Stone Station--1Q02 through 1Q03

Origin/Time Period (1)	BNSF Common Carrier Rate Per Ton[1/] (2)	Otter Tail's Rebuttal Variable Cost Per Ton (3)	Otter Tail's Rebuttal R/VC Ratio [2/] (4)	BNSF Reply Variable Cost Per Ton (5)	BNSF Reply R/VC Ratio [3/] (6)	Amount BNSF's Reply Exceeds Otter Tails Rebuttal Variable Cost Per Ton [4/] (7)
A. Belle Ayr						
1. 1Q02	$13.49	$5.09	265%	$5.89	229%	$0.80
2. 2Q02	13.49	5.13	263%	5.94	227%	0.81
3. 3Q02	13.49	5.13	263%	5.93	227%	0.80
4. 4Q02	13.49	5.23	258%	6.05	223%	0.82
5. 1Q03	13.76	5.51	250%	6.39	215%	0.88
B. Eagle Butte						
10. 1Q02	$13.49	$4.96	272%	$5.83	232%	$0.87
11. 2Q02	13.49	5.03	268%	5.91	228%	0.88
12. 3Q02	13.49	5.06	267%	5.93	227%	0.87
13. 4Q02	13.49	5.09	265%	5.96	226%	0.87
14 1Q03	13.76	5.52	249%	6.46	213%	0.94

Sources: Otter Tail data from Rebuttal Exhibit II-A-55. BNSF data from Reply, Table II-A-6, page II-64.
1/ BNSF Common Carrier Pricing Authority BNSF 90062 and 90062-A.
2/ Column (2) ÷ Column (3).
3/ Column (2) ÷ Column (5).
4/ Column (5) - Column (3).

Details supporting the above variable cost findings are discussed in Part II.A.1.b., below.

b. Variable Cost of Service

BNSF's October 8, 2003 Reply raises several objections to Otter Tail's June 13, 2003 variable cost calculations. For the most part, Otter Tail's October 8, 2003 Reply variable cost calculations had anticipated BNSF's Reply objections. Because of this, Otter Tail's Rebuttal will not address the

BNSF Reply objections that had already been addressed in Otter Tail's Reply. Furthermore, with the exception of the four BNSF and four Otter Tail revisions described at page II-A-4, supra, neither party has modified its Opening variable cost analyses. Therefore, Otter Tail's Rebuttal will compile the sources where the Board may find the exposition of each party's positions and respond to a few new issues raised by BNSF in Reply that Otter Tail has not previously addressed. Otter Tail will focus principally upon those cost issues that have been revised in response to BNSF's Reply, which are Maintenance of Way, Locomotive Maintenance, spare margin, and crew wage costs.

In this Section, Otter Tail addresses the defects in BNSF's Reply presentation, and identifies those elements of Mr. Fisher's costing work that merit incorporation into Otter Tail's Rebuttal restatement. Both parties continue to use the Ex Parte No. 638 agreed traffic and operating characteristics, so this section does not cover that subject.

The Section is organized under the following topical headings:

i. Preliminary Matters

ii. Restatement of Variable Cost of Service

i. Preliminary Matters

BNSF's variable cost presentation can only be understood in the context of its overall variable cost strategy, which is to push variable costs up to system average. BNSF's motivation is transparent. Because unit train transportation[8] is dramatically more cost efficient than any other form of rail transportation, system average variable costs significantly overstate the variable cost of unit

[8] Defined as "Movement of a particular commodity in trainload lots on an arranged schedule." (See Transportation Logistics Dictionary by Cavinato, copyright 1982, p. 237).

train movements.[9] In addition, several past rate cases have resulted in prescribed rates at the Jurisdictional Threshold (i.e., 180% of variable costs). Therefore, BNSF has every incentive to drive its variable cost calculations as high as possible. BNSF has attempted to do so by relying upon system average costs in place of the true, movement-specific costs of unit train transportation.

In order to justify its use of system average costs, BNSF claims that movement-specific costs based upon its own accounting data are not "demonstrably superior" to system average costs because the data is so poor and unreliable. If true, this claim leads one to question why BNSF even continues to maintain such data in the first place. In the case of road property accounting data, BNSF witness Elliott implies that BNSF's accounting system is designed simply to meet the minimum requirements of regulation.[10] To credit this claim would be to believe that BNSF has spent billion on road property investment (of BNSF's total investment), but does not know where it has spent the money.

Surely, BNSF has designed its accounting and information systems to support the management decisions that BNSF's executives must make every day. Ms. Elliott cannot be suggesting that BNSF's information systems and databases do not contain the information that BNSF needs to run its business. Nor can Ms. Elliott be suggesting that BNSF's executives do not have the information they need to run their departments. Accounting data is the information life blood of any well-managed corporation in today's highly competitive economy. BNSF undoubtedly has continued to upgrade its management information systems, including its accounting system, to provide the

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9 As stated in the Board's February 9, 2001 decision in the TMPA proceeding, "TMPA correctly notes that adjustments to a defendant carrier's system-average costs are appropriate to reflect the economies and efficiencies that are associated with high-volume, repetitive movements such as the unit-train service at issue here" Id at 3.

10 See Elliott Verified Statement, page 29-31, included as Otter Tail Reply Workpaper, page 4835-4837.

information that BNSF's managers need to make decisions regarding the profitable deployment of assets.

This case features a concerted effort by BNSF to revert the Board to reliance on system averages for the calculation of variable costs in areas that for years have been the subject of movement or line-specific adjustments. As recently as 1996 in West Texas Utilities, BNSF itself presented movement-specific costs for return on and depreciation of road property investment, maintenance-of-way, joint facilities, locomotive maintenance, locomotive capital costs, freight car capital costs, EOTD capital costs, crew wages, switching, fuel, and helper service costs. Id. 1 S.T.B. at 721-729. In spite of that fact, BNSF argues in this case that some of the most important cost categories (that is, return on and depreciation of Road Property investment, maintenance-of-way, joint facilities, and locomotive maintenance) should be governed by system averages due to the lack of adequate line or movement-specific data. Either BNSF has not been forthcoming in its responses to Otter Tail's discovery requests, or it is asking the Board to believe that it has become less cost-conscious and adopted inferior record-keeping practices over the past seven years.

The Board should not permit BNSF to summarily discredit its own data and accounting system (particularly when BNSF itself has relied upon them in past rate cases) in an effort to drive variable costs up to system average. It is abundantly clear from the history of SAC cases that the actual, movement-specific, costs of unit train transportation are below system average. Therefore, reliance upon system average costs will greatly prejudice coal shippers.

ii. Restatement of the Variable Cost of Service

In this Section, Otter Tail addresses each party's calculation of variable costs. Otter Tail has not altered its Reply variable cost calculations in this Rebuttal, with the exception of incremental

changes in Otter Tail's Locomotive Maintenance, Locomotive Capital, MOW and Crew Wages cost calculations. BNSF, in its Reply, did not alter its Opening Evidence variable cost calculations except by adopting the Ex Parte No. 638 agreed traffic and operating characteristics and to correct some of its Crew Wage Cost errors. In its Reply, Otter Tail already has fully documented the reasons that its variable cost calculations are superior to those developed by BNSF.

The following describes each Otter Tail Rebuttal Exhibit:

- II-A-35 compares both parties' rates, variable costs and rate to cost ratios;
- II-A-36 particularizes the differences between Otter Tail's and BNSF's costs for each cost component broken down by factors causing the difference in costs;
- II-A-37 specifies the Ex Parte No. 638 agreed traffic and operating characteristics;
- Exhibit II-A-38 presents Otter Tail's revised Maintenance of Way adjustment ratio;
- Exhibit II-A-39 presents Otter Tail's revised Locomotive Maintenance Costs and Spare Margin;
- II-A-40 presents Otter Tail's revised Crew Wage Costs;
- Exhibits II-A-41 through II-A-53 detail Otter Tail's Rebuttal restatements of variable costs;[11] and
- Exhibit II-A-55 summarizes Otter Tail's Rebuttal rates, variable costs, and revenue to variable cost ratios for each mine origin for each time period from 1Q02 through 1Q03.

Table II-A-22, below, lists the citations for both parties' positions regarding major cost components of the variable cost calculations. That evidence and argument will not be repeated or summarized in this Rebuttal.

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[11] Otter Tail's restatement of variable costs is grouped by origin and by time period. Belle Ayr and Eagle Butte variable costs are presented for each quarter 1Q02 through 1Q03. Cordero and Cabollo Rojo variable costs are presented for 4Q02, and costs are proffered for all Common Carrier Pricing Authority ("CCPA") BNSF 90062-A mines for 1Q03.

Table II-A-22

Compilation of Otter Tail's Opening and Reply and BNSF's
Reply Variable Cost Component Calculation Citations

Variable Cost Component	Otter Tail's Opening Narrative Pages II-A-[1/]	Otter Tail's Reply Narrative Pages II-A-[2/]	BNSF Reply Narrative Pages II-
(1)	(2)	(3)	(4)
1. Road Property Capital	26-28	7-13	26-36
2. Loco Maintenance	28-30	13-17	37-43
3. Loco Capital	31-32	17-35	57-61
4. MOW	23-26	35	17-26
5. Crew Wages	32-34	35-41	44-52
6. Helpers	36-37	44-46	52-55
7. Switching	38	41-42	14-16
8. Other	34-39	42-47	56-57; 62-63

1/ Also see Otter Tail Opening Exhibits II-A-3 through 6 and II-A-7 through II-A-19.
2/ Also see Otter Tail Reply Exhibits II-A-24 through II-A-26.

The parties' cost component estimates differ by the largest magnitude for the cost categories listed in Table II-A-23. Table II-A-23 also lists the magnitude of the difference for each cost category and its share of the total variable cost difference between Otter Tail's restated Rebuttal variable costs and BNSF's Reply costs for the 1Q02 unit train movement of coal from Belle Ayr to Big Stone Station.

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Table II-A-23
Comparison of Otter Tail Rebuttal and BNSF Reply Variable Costs
Belle Ayr to Big Stone Station - 1Q02 - Aluminum Cars
Cost Component Differences of Largest Magnitude - $/Carload) [1/]

	Cost Component (1)	Otter Tail (2)	BNSF (3)	Difference (4)	% of Total (5)
1.	Road Property Capital				
2.	Loco Maintenance				
3.	Loco Capital				
4.	MOW				
5.	Crew Wages				
6.	Helpers				
7.	Switching				
8.	Other				-----
9.	Total	$599.72	$694.69	$94.97	$100.0%

[1/] Source: Exhibit II-A-36, page 1 of 23.

While the parties' positions cited above will not be repeated in this Rebuttal, BNSF's Reply evidence raises some new issues that are addressed in this Rebuttal under the following cost component headings:

(a) Road Property Capital Costs

(b) Locomotive Maintenance

(c) Locomotive Capital

(d) MOW

(e) Crew Wages

(f) Helpers

(g) Switching

(h) Other

(a) Road Property Investment
Return and Depreciation Costs

BNSF's books and records (not just its published financial reports) are audited and approved only after passing rigorous auditing requirements designed to give the public more confidence in those records. Incredibly, and in spite of the importance of road property investment to BNSF's profitability, BNSF states that Otter Tail cannot rely on the validity of BNSF's line-specific accounting records. BNSF presumes that Otter Tail must prove that BNSF's road property accounting data are correct to refute BNSF's claim that their road property accounting data is bad. On the contrary, Otter Tail, the shipping public, the Board, and the SEC have a right to rely on the accounting records of any STB- and SEC-regulated railroad. If that were not true, there would be no purpose to auditing accreditation or Board or SEC regulations in this regard.

(i) BNSF's Drive Toward System
Average Road Property Investment Costs

BNSF fought to preserve system average Road Property Capital Costs by refusing to furnish Otter Tail the line-specific information it needed to determine movement-specific Road Property Capital Costs. BNSF claimed that its road property data "are unreliable" and "incomplete."[12] BNSF's efforts to force complainants and the Board to reverse decades of costing practices and to utilize system-average Road Property Capital Costs data are part of a disturbing agenda to force the Board to accept higher system average costs.

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[12] See Defendant's Reply to Complainant's First Motion to Compel Production of Documents, in this proceeding, May 1, 2002, page 9.

Subsequent to San Antonio,[13] and before TMPA, BNSF presented Road Property Capital Costs on a movement-specific basis. Now, however, Mr. Fisher, Ms. Elliott, and Mr. Klick testifying for BNSF, claim that BNSF no longer maintains road property investment return and depreciation data on a service-specific basis. These assertions, however, are inconsistent with past treatment of this data by both BNSF and the Board.

In the early and mid-1970's, the Burlington Northern ("BN"), BNSF's largest predecessor and sole developer of the rail network serving the Powder River Basin ("PRB") at the time, was faced with the conundrum of making billions of dollars in road property investments with only the promise of future coal transportation tonnage sufficient to financially support that investment. BN's solution was to raise the required capital in the financial markets and to charge a pro-rata share of the "coal-related"[14] Road Property Capital Costs to each new coal movement out of the PRB.

In the 1970's and 1980's, BN went to great lengths to segregate "coal-related" investments, including the development of revised Rail Form A's in which the "...capital portion [of "coal-related" investments] was removed from the investment base prior to making the Rail Form A applications." BN's Rail Form A's contained no "coal-related" investments.[15] BN determined "...the proper investment over the route to be traveled by the individual movement..."[16] BN then allocated

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13 San Antonio, 1 I.C.C. 2d at 584-85.

14 BN defined "coal-related" incremental investments as those road property investments "...attributable solely to additional coal traffic." (See Verified Statement of Joseph J. Plaistow, BN Director-Costs and Financial Analysis, Annual Volume Rates on Coal - Rawhide Junction, Wyoming, to Sergeant Bluff, Iowa, ICC Docket No. 37021, October 23, 1978, ("Iowa Public Service"), page 13 attached as Otter Tail Rebuttal Workpaper Vol. III, pp. 5151 to 5163.

15 Id, page 18 and 20.

16 Id, page 22.

"coal-related" investments to individual traffic segments based upon the ratio of the issue traffic tonnage to the total traffic tonnage.[17]

Accordingly, when BNSF's predecessor saw an opportunity to increase rates by detailed accounting of line-specific road property investments, it did so. However, now that BNSF believes that it can increase rates through the application of higher system average Road Property Capital Costs, BNSF asserts that its data is unreliable and that it no longer has an independent business justification to collect detailed, line-specific accounting records. Therefore, BNSF claims that the Board must default to higher system average Road Property Capital Costs.

But, fairness to Otter Tail requires that only Road Property Capital Costs specific to the Otter Tail movement be included in variable costs, because that is the cost that BNSF must incur to provide rail service to Otter Tail. BNSF coal transportation costs per unit are among the lowest of any railroad in the nation and are significantly less than BNSF system average costs per unit or BNSF merchandise traffic average costs per unit.[18] Therefore, for every cost component that BNSF is able to push up to system average in a coal rate proceeding, a market dominant BNSF can increase the jurisdictional floor, the lowest point at which a rate may be prescribed. However, since Otter Tail does not require BNSF to expend higher system average Road Property Capital Costs, Otter Tail should not be required to pay the higher system average Road Property Capital Costs.

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17 Id, page 24. To see the parallel between the procedure employed by BN in the 1970's and the procedure employed by Otter Tail today.

18 The basis for this statement is Mr. Plaistow's experience as a Burlington Northern ("BN") employee. As BN's Director of Costs and Financial Analysis, Mr. Plaistow was instrumental in the development of BN's "Blacktrack," coal-specific, costing model as well as the development of BN's general merchandise traffic costing model.

(ii) The Significance of Line Segment-Specific Road Property Capital Costs

At pages II-A-26 through 28 and Exhibit II-A-4 of Opening and pages II-A-7 through 13 and Exhibits II-A-24 through 26 of Reply, Otter Tail explained why the Board should adopt its Road Property Capital Costs and reject BNSF's attempt to push these costs up to system average levels.

In Exhibit II-A-36, page 1 of 23, Otter Tail shows that the difference between system-average and service-specific costs for Road Property Capital Costs is $0.36 per ton. At the jurisdictional threshold level, $0.36 per ton equates to $0.65 per ton (that is, $0.36 times 1.8). On an annual basis, $0.65 per ton for the ' million tons of coal that Otter Tail consumes equates to more than million (or more than $ million over a 10-year period) just for this one cost component.

(iii) Otter Tail's "Demonstrably Superior" Line Segment-Specific Road Property Capital Costs

The Board prefers "demonstrably superior" estimating procedures and results of calculations in those situations where the Board traditionally has accepted alternatives to system average costs.[19] Both the Board and BNSF traditionally have used alternative Road Property Capital Costs, not system average. This section shows that Otter Tail's line segment-specific costs are "demonstrably superior" to BNSF's system average costs.

BNSF recites the reasonable procedures that BNSF has used to allocate road property investments. (See, for example, BNSF Reply, page II-30). But Mr. Fisher and Ms. Elliott then conclude that, because BNSF had to make these reasonable allocations, the resulting investment records cannot be used to determine Adjusted Road Property Capital Costs and that the Board should rely on system average costs. "Reasonable allocations" of investments, however, are clearly and

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[19] Adoption of URCS, 5 I.C.C. 2d 899 n. 12 (1989): See also 49 U.S.C. Section 10707(d)(1)(B).

"demonstrably superior" to system averages. If Mr. Fisher were correct and system averages were superior, BNSF would not use those reasonable allocations for any purpose in its internal management systems, in its reports to the Board, or in its reports to state tax institutions.[20] BNSF's actions belie BNSF's claims.

To evaluate whether or not a specific cost estimate is "demonstrably superior" to a system average cost estimate, the Board considers the components of each cost estimate. Line segment-specific Road Property Capital Costs are made up of the return on and the depreciation of the road property investments used to provide service to a specific shipper. Those Road Property Capital Costs are shared across the gross ton-miles of all shippers benefitting from those road property investments. Thus, the two primary independent variables in this cost estimate are (1) the values of the road property investments and (2) the gross ton-miles of the traffic using those investments.

- **Values of the Road Property Investments**

BNSF's criticism of Otter Tail's line-specific road property investment estimates is not justified. BNSF claims that Otter Tail's line-specific road property investment estimates are not perfect. But BNSF has not made any attempt to evaluate whether Otter Tail's line-specific estimate is "demonstrably superior" to the system average estimate. Therefore, BNSF has not addressed the standard set by the Board.

In Reply Exhibits II-A-24 and 25, Otter Tail showed that the BNSF-provided line-specific information can be used to calculate Adjusted Road Property Capital Costs and that such efforts produce reasonably accurate estimates of the values of road property investments. While the allocation procedure on which BNSF relied may not produce "perfect" valuation estimates of each

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[20] See Elliott Verified Statement, page 31, included as Otter Tail Reply Workpapers, page 4837. "Defendant's Reply to Complainant's First Motion to Compel Production of Documents" is included in its entirety as Otter Tail Reply Workpapers, pages 4827-4840.

asset, it is "demonstrably superior" to the system average used by Mr. Fisher. System average investments include road property valuations throughout the BNSF system along with the PRB to Big Stone road property valuations to derive the Big Stone route's valuation. Clearly, BNSF's reasonable estimate of the Big Stone route's road property values is "demonstrably superior" to Mr. Fisher's system average estimate, which is debased by values and investments in numerous geographic regions of the country having nothing to do with BNSF's service to Big Stone. Mr. Fisher's claim that his URCS system-average costs are the only appropriate source of roadway ownership costs is groundless, since he does not even attempt to offer evidence that his system average estimate is somehow "demonstrably superior" to Otter Tail's line segment-specific estimate based on BNSF's reasonable allocations.

- **Gross Ton-Miles of the Traffic**

The second variable when evaluating the "demonstrable superiority" of line segment-specific Road Property Capital Costs is the traffic density measured in gross ton-miles of traffic moving over the Big Stone route's road property investments. BNSF has not even addressed the accuracy of Otter Tail's traffic density estimate.

Unlike road property investment values, BNSF never claims that the traffic density data used by Otter Tail is inaccurate or unreliable. Of course, there is no basis for BNSF to charge that the traffic density information it furnished Otter Tail is flawed. BNSF supplied the data from its internal records, and Otter Tail used that data with no adjustment.[21] BNSF uses that same or similar data in its own SAC analyses. With no regard for consistency, BNSF uses traffic densities based on line-

[21] See electronic file "2002 Density by Traffic Type.xls" supplied by BNSF in discovery and included in Otter Tail's Rebuttal electronic workpapers.

specific data for SAC calculations and traffic densities based on system average data for variable cost calculations.

Clearly, both Otter Tail and BNSF agree that BNSF's internal traffic density data is "demonstrably superior" to a system average estimate of actual line segment-specific traffic density.

In summary, both Otter Tail's road property investment values and its traffic density data are "demonstrably superior" to BNSF's system average approximations.

(iv) BNSF's Other Reply Attacks have been Rebutted or Have no Basis In Fact

BNSF's main thesis arguing against Otter Tail's line segment-specific Road Property Capital Costs is that Otter Tail based its calculations on the accounting data supplied to it by BNSF, and that the BNSF-supplied accounting data are inaccurate because of the poor methods BNSF used to develop that data. BNSF's position is nonsense. BNSF itself selected and applied the methods it used to make the required reasonable allocations, so it makes no sense for BNSF to criticize Otter Tail and the Board for employing the data BNSF itself developed and supplied to Otter Tail. BNSF itself controls the procedures used.

BNSF argues that since it did such a poor job of developing its road property accounting data, Otter Tail and the Board should be required to use system average Road Property Capital Costs that substantially overstate BNSF's actual cost of providing the Otter Tail service. BNSF's main thesis (including its arguments related to PISNU, the ATSF write-up, unassigned investments, unallocated investments, and variability) has been rebutted in Otter Tail's Opening, its Reply, and supra in this Rebuttal. The Board should not countenance BNSF's criticisms of Otter Tail's and the Board's use of the data that BNSF calculated and provided. (BNSF made those calculations, not Otter Tail or the Board). If BNSF truly believed its criticisms of its own development of that data, then BNSF should

have re-determined that data using procedures in which it believed. Failing to make that re-determination leads one to believe that BNSF's sole purpose in making its criticisms was to facilitate its efforts to force Otter Tail and the Board to adopt system average Road Property Capital Costs rather than the true, line segment-specific costs that BNSF actually incurs in providing the Otter Tail service.

BNSF's Reply also attacks Otter Tail's Opening by claiming that Otter Tail's Road Property Capital Costs cannot be correct for several additional reasons not previously addressed in this Rebuttal or in Otter Tail's Opening or Reply.

First, BNSF claims that Otter Tail "...acknowledged in the *AEPCO* rate case that BNSF's line-segment specific road property data *could not* be used to develop a movement-specific adjustment to BNSF's system-average road ownership costs." (See BNSF Reply, page II-27). BNSF is wrong,[22] and the specific facts of the *AEPCO* proceeding are not present in this proceeding, so BNSF's claim is also irrelevant.

Second, BNSF denigrates Otter Tail's reliance on the precedential value of TMPA's ruling on the treatment of Road Property Capital Costs, stating, "Although the Board accepted complainant's adjustment in that case, the Board did not address fundamental problems with the data and complainant's methodology there." (See BNSF Reply, page II-27, fn 49). Again, BNSF is wrong. In TMPA, BNSF raised the same complaints to the use of its own accounting data that it raised in this proceeding. The Board considered both parties' positions and ruled in favor of TMPA's position that is basically the same as Otter Tail's position herein.

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22 BNSF presented no evidence in the instant proceeding comparing the road property investment data that it provided in the instant proceeding with that provided by BNSF in AEPCO.

Third, BNSF claims: "Nor did the Board [in TMPA] address the use of data generated by the flawed depreciation calculator which Otter Tail uses in this case." (See BNSF Reply, page II-27, fn 49). BNSF is wrong. In the first place, BNSF used the same depreciation calculator in TMPA, so the Board has already addressed its use. In the second place, Otter Tail described its procedure in detail in Opening and in Reply. At no point did Otter Tail's procedure use the depreciation calculator. BNSF stated that it used the depreciation calculator to develop the numbers that BNSF furnished to Otter Tail, but Otter Tail's request for documentation of BNSF's depreciation calculator application elicited nothing responsive to the request.[23] Further, Otter Tail's use of the BNSF-developed data does not make Otter Tail responsible in any way for the procedures BNSF chose to employ in the development of that data.

Before its merger with ATSF, Burlington Northern had a procedure to depreciate its line segment-specific road property investments. BNSF's witnesses in the instant proceeding used BN's line segment-specific road property investment information to determine Road Property Capital Costs in WTU, so those witnesses obviously believed that the BN procedure produced reliable results. Since then, BN merged with ATSF to form BNSF. BNSF points out that the "...data relied upon by the former BN in the *WTU* case were drawn from BN's property accounting records and not ATSF's FADB system...,"[24] but in no way does that fact diminish the relevance and validity of the data BNSF provided to Otter Tail in this proceeding. At the time of merger, BNSF would have selected the better procedure from those available from BN or ATSF. Since BNSF chose the ATSF procedure, it must have believed it to be superior to the BN procedure. Otherwise, why would BNSF have selected it? However, it is the ATSF procedure regarding which BNSF is now so critical. It

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23 See BNSF response to Otter Tail's 3rd Request For Workpaper included as Otter Tail Rebuttal Workpapers Vol III, pages 5166 to 5167.

24 See BNSF Reply, page II-30, fn 55.

appears that the ATSF procedure is not as unreliable as BNSF claims, and BNSF's denigration of the ATSF procedure is designed to push variable costs above the true movement-specific costs – up to system average.

Furthermore, the Board did not state that BNSF must use "...the depreciation calculator as ordered by the Board's Order of November 15, 2002..." as BNSF claims. (See BNSF Reply, page II-31, fn 60). The Board stated "Accordingly, this portion of the motion to compel [that is, the portion seeking line segment-specific road property investment and depreciation data] will be granted, and BNSF should disclose information on road property investment costs and depreciation in whatever format it is maintained by BNSF." (See the Board's November 15, 2002 decision in this proceeding, page 9 (emphasis supplied).

Fourth, regarding PISNU investments, BNSF objects to the TMPA accepted Road Property Capital Costing procedure because BNSF claims that, while PISNU investments are not assigned

Certainly however, Otter Tail cannot be faulted for failing to reflect the PISNU line segment-specific data when BNSF refuses to provide that data.

Fifth, BNSF further denigrates its own data by citing additional shortcomings of the PISNU data wherein those PISNU investments are "...likely more expensive than the older assets that they

replaced..." (See BNSF Reply, page II-29). Whether or not this BNSF claim is correct can only be shown with evidence that only BNSF possesses, but BNSF has not entered that evidence into this record. Also, much of the PISNU investment does not replace older assets. Rather, it is in addition to the older assets or it is a substantial betterment of the older asset. BNSF must provide the evidence required for the Board to evaluate BNSF's claim.

Sixth, regarding the unassigned category of investments, BNSF claims that the

(See BNSF Reply, page II-30). Once again, BNSF has used a reasonable procedure for allocating these ballast investments. Any reasonable allocation is "demonstrably superior" to the system average that BNSF included in its costs since the system average allocation spreads those investments over the entire BNSF system, not just the region in which the investments were actually made.

Seventh, an additional point that BNSF raises regarding the depreciation calculator is that it "...continues to reflect the asset history and depreciation rates of the ATSF." (See BNSF Reply, page II-31). While BNSF did not provide any response to Otter Tail's request for documentation regarding BNSF's use of the depreciation calculator, Mr. Fisher's statement regarding BNSF's use of ATSF's depreciation rates is most likely untrue. BNSF and all other railroads periodically update their depreciation rates through application of the Iowa survivor curves.[25] The road depreciation rates that BNSF furnished to Otter Tail in discovery were effective January 1, 1997.[26] If the depreciation calculator were actually using ATSF rates, they would have had to have been effective

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25 See BNSF.OP.WP (Supp). II-A-0008 to 0110 provided in response to Otter Tail's 4th Request for Workpapers, September 3, 2003.

26 See discovery workpaper BNSF/OTP 18432 included as Otter Tail Opening Workpaper Vol. III, 1 of 6, page 377.

in 1995, not 1997, because ATSF's last R-1 was from 1995. Furthermore, BNSF is the firm that applied the depreciation calculator, not Otter Tail or the Board. If BNSF really believes that the depreciation calculator applied the wrong depreciation rates, it would be more appropriate for BNSF to apply the Board approved depreciation rates and to 1) re-determine the depreciation calculator's results and 2) provide those results to Otter Tail and the Board. Failing to make this re-determination leads one to believe that BNSF's depreciation calculator results are more reliable than BNSF claims.

Contrary to BNSF's claim that "...the depreciation calculator [that supposedly uses ATSF depreciation rates] vastly overstates BNSF's actual depreciation..." (See BNSF Reply, page II-31), ATSF depreciation rates in 1995 immediately;

Road Property Capital Cost adjustment ratio. Current 2002 BNSF depreciation rates appear to be

[27]

Eighth, at page II-32, BNSF presents Table II.A-3 indicating that the Otter Tail route shows a higher percentage of accumulated depreciation than the system average as a whole, but the comparison is of no relevance. BNSF could compare the percent accumulated depreciation over any line segment and it would only be coincidental if it were the same as system average. The only conclusion that the Board can draw from BNSF's Table II-A-3 is that the Board should not use system average investment and depreciation because it will not represent the actual investment and depreciation costs of the line segment actually used to provide the service of interest. This conclusion is reinforced when BNSF's electronic file "Depreciation Example.xls" is critically reviewed.[28]

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[27] See Otter Tail Rebuttal electronic file "Pre-Merger and Current Deprec Rates.123."
[28] See BNSF Reply, page II-31, fn 59.

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BNSF's "Depreciation Example.xls" illustrates the need for BNSF to provide current FADB totals by account. BNSF shows a range of

for the line segments BNSF reports in their example. This range is caused by the large difference in dates of service for investment on varying line segments. The former BN record investments back to 1941 and include many records where investment has been 100% depreciated.[29]

The FADB historical data

It is not possible to adjust this historical accumulated depreciation data base for the Otter Tail route to the R-1 level. Instead, Otter Tail adjusts the system accumulated depreciation to the FADB level.[31]

A review of the 'URCS Inv' level of "Road Inv OTP Rebuttal.123" shows that the R-1 accumulated depreciation for the track accounts ranges which agrees with BNSF's "Depreciation Example.xls." However, the FADB accumulated depreciation used to calculate net investment at the FADB level, ranges from

Otter Tail's Reply and Rebuttal Road Property Capital Costs have accounted for the difference in accumulated depreciation (R-1 vs. FADB) by adjusting accumulated depreciation at the system level.

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29 See electronic file "Road Inv OTP Rebuttal.123", sheet 'Val Sec Detail', lines 1401-1426, 2388-2400, and 3100-3112.

30 See electronic file "Road Inv OTP Rebuttal.123", sheet 'Val Sec Detail' (imported from BNSF discovery file "ls1_dv_2002.txt" report #2 of 2), columns entitled "SERV YEAR" (i.e., year in service) and "DEP CAT," (i.e., depreciation code and category). Calculating the depreciation rates on lines 94-98 reveals that the rates for the same codes were 1.

31 In this Rebuttal statement Otter Tail continues to make this adjustment based on 2000 FADB totals by account because BNSF refused to provide the 2002 data that would have enabled Otter Tail to make a more accurate adjustment.

32 See electronic file "Road Inv OTP Rebuttal.123", sheet 'URCS Inv', column (13).

Otter Tail's use of the FADB accumulated depreciation decreases net investment and puts the system average road property net investment per gross ton-mile on the same level as the route specific FADB-level road property investment per gross ton-mile for the Otter Tail route.

Ninth, BNSF claims that Otter Tail "...improperly uses FADB gross investment and flawed depreciation data that do not include yard investment as a basis for comparison to BNSF's system-wide depreciation figures that include both yard and running investments..." (See BNSF Reply, pages II-27 to 28 and II-32 to 33). BNSF's primary objection to Otter Tail's use of BNSF's accounting data have already been addressed. BNSF's new charge is that Otter Tail did not include yard investment in developing the adjustment ratio to system average.

Otter Tail used all the investment information supplied to it by BNSF. (Recall that Otter Tail had to compel BNSF to provide any line segment-specific information after BNSF refused to provide that data). Otter Tail requested, "For each valuation section on the BNSF system traversed in whole or in part by the Otter Tail trains, please provide the following information for each year from 1999 through the present..." (See "[Otter Tail's] Complainant's First Set of Interrogatories and Requests for Production of Documents," January 2002, Request for Production No. 12, page 18). Otter Tail asked for every valuation section used by the Otter Tail trains. Otter Tail did not ask for valuation sections involving running tracks only. It also appeared that BNSF had provided yard investment for the Otter Tail route. (See, for example, line segment 2013, val sec 016 purporting to cover the Aberdeen Yard as reported in BNSF Discovery File "LSRanges.xls"). That is what Otter Tail expected since that is what Otter Tail requested and what the Board compelled BNSF to provide. Now BNSF claims that it did not provide the requested data. That puts BNSF in violation of the Board order, but rather than belatedly providing the data, BNSF claims that Otter Tail erred by not

reflecting data that BNSF had refused to provide. As the Board stated at p. 17 in its WPL decision served May 14, 2002,

> "If [the railroad] possessed evidence concerning investment costs for the segments in question, it should have provided them to [the shipper] on discovery. [The shipper] should not be faulted for failing to include investment information that was not provided to it by [the railroad]."

Permitting the railroad to abuse the discovery process in the way BNSF attempts to do so here would give railroads blanket authority to omit data that had been requested in discovery and then to claim that the shipper's use of the incomplete data requires rejection of the shipper's cost estimates based on that incomplete data.

Finally, BNSF claims "...Otter Tail's approach ignores the relationship between density and variability." (See BNSF Reply, page II-34). Otter Tail fully addressed this BNSF claim in Reply. (See Otter Tail Reply, Exhibit II-A-24, pages 14 through 21). In Reply Exhibit II-A-25, page 7, Otter Tail pointed out that BNSF's witness Klick used the 50% variability factor in the WTU proceeding for application to road property investments over the West Texas Utilities route to Oklaunion, Texas even though the traffic density over the West Texas route is even greater than that over the Otter Tail route. Now BNSF's Mr. Klick claims that 50% variability does not apply to the Otter Tail route. In the instant proceeding, BNSF's Mr. Klick makes no attempt to rationalize his inconsistency.

In Reply at pages II-34 to 36, BNSF claims that the URCS variability for 4 separate expense accounts has increased with increasing density between 1996 and 2001. Of course, BNSF was not able to make that claim with regard to the variability for application to Road Property Capital Costs, and any variability associated with any expense account other than Road Property Capital Costs is

irrelevant for present application to Road Property Capital Costs. Otter Tail pointed that fact out in Reply Exhibit II-A-24, pages 19 to 20.

(v) Summary - Road Property Capital Costs

Otter Tail's special study of BNSF's Adjusted Road Property Capital Costs in this Rebuttal is based on BNSF-provided line-specific investment data for those investments needed to provide service to Otter Tail. Most of that cost is based on the actual investments and gross ton-miles over the valuation section milepost ranges traversed by the Big Stone trains. Appropriate adjustments have been made to reflect the issues of unallocated monies (PISNU and Unassigned FMA) and differences in accumulated depreciation. Otter Tail's Road Depreciation and Return on Road costs are "demonstrably superior" to BNSF's system average calculation, and should be accepted as the best evidence of record.

(b) Locomotive Maintenance Costs

Otter Tail covers locomotive maintenance costs in Opening at pages II-28 to 30, in Reply at pages II-A-13 to 17, and in Exhibit II-A-27. BNSF covers locomotive maintenance in Reply at pages II-37 to 43. Otter Tail's Rebuttal makes a minor modification to its Reply costs by reflecting the effective date of the Alstom agreement as being March 1, 2003, not the January 1, 2003 effective date Otter Tail used in Reply. Now Otter Tail reflects each of BNSF's locomotive agreements only for the time periods for which they are effective. BNSF erred by using system average locomotive maintenance costs in both Opening and Reply.

(i) BNSF's Drive Toward System Average Locomotive Maintenance Costs

BNSF tries to force the use of system average Locomotive Maintenance Costs. In the past, BN maintained locomotive maintenance and utilization information in its Reports, respectively. Now BNSF claims that:

> "BNSF does not maintain data that capture the costs of maintaining any specific locomotive or class of locomotives."[33]

While it may be true that BNSF no longer maintains its Reports, it is highly unlikely that "BNSF does not maintain data that capture the costs of maintaining any specific locomotive or class of locomotives." Of course BNSF records that information in its computers in some form even if it no longer keeps it in the form of a report. BNSF needs locomotive maintenance information to support its Locomotive Distribution System, its locomotive capital expenditure program, its locomotive shops, and to insure that its locomotive fleet is adequate and mechanically able to support its traffic demands for trains moving coal, grain, intermodal, and general freight.

In Exhibit II-A-36, page 1 of 23, Otter Tail shows that the difference between BNSF's system-average and Otter Tail's service-specific costs for Locomotive Maintenance Costs is $ per ton. At the jurisdictional threshold level, $ per ton equates to $ per ton (that is, $ times 1.8). On an annual basis, $ per ton for the million tons of coal that Otter Tail consumes equates to almost $ million (or almost million over a 10-year period) just for locomotive maintenance. BNSF's claim that it no longer maintains detailed locomotive maintenance cost data is difficult to believe and accept.

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[33] BNSF Reply, page II-37.

In Reply BNSF criticizes Otter Tail's locomotive maintenance costs in the following four respects:

(ii) BNSF claims that "Otter Tail Fails to Account for Non-Routine Locomotive Maintenance Costs." (See BNSF Reply, page II-37);

(iii) BNSF claims that "Otter Tail Fails to Account for Overhaul Expenses." (See BNSF Reply, page II-38);

(iv) BNSF claims that "Otter Tail Misapplies BNSF's Maintenance Contracts." (See BNSF Reply, page II-40); and

(v) BNSF claims that "There is No Reason to Expect BNSF's Maintenance Costs for the Locomotives that Power the Big Stone Train to be Less than BNSF's System-Average Maintenance Costs." (See BNSF Reply, page II-42).

Each of BNSF's claims will be proved wrong below.

(ii) BNSF Claims that "Otter Tail Fails to Account for Non-Routine Locomotive Maintenance Costs"

In Reply at pages II-37 to 38 and footnotes 77 and 78, BNSF argues that Otter Tail has not properly accounted for non-routine locomotive maintenance costs. Otter Tail anticipated BNSF's charges and fully rebutted them in Reply at page II-A-14 and 15 and footnote 32. To summarize, BNSF charged that Otter Tail also adjusted system average non-routine locomotive maintenance costs. Otter Tail did not. Otter Tail and BNSF both used system average for non-routine locomotive maintenance costs. Otter Tail pointed out that BNSF erred in its treatment of routine, not non-routine, locomotive maintenance costs by using system average locomotive maintenance costs when BNSF's own records showed that service-specific locomotive maintenance costs were significantly lower.

Otter Tail's locomotive maintenance adjustment factor is based only on routine, direct locomotive repair expenses. (See electronic workpaper file "Rebuttal Loco Maint OTP-2003.123."

The URCS amounts that Otter Tail adjusts do not include those identified by BNSF at Reply page II-38 and footnote 77 (i.e., facilities, shops, non-direct labor, wrecks, or any other ancillary cost associated with locomotives maintenance). Those non-routine maintenance costs are included by Otter Tail on an URCS system average basis, the same way they were treated by BNSF.

BNSF makes an additional charge claiming that Otter Tail has excluded coverage of certain compensation items not covered by BNSF's agreements with its service providers. BNSF characterizes its agreements with EMD as not providing compensation to BNSF for labor hours not worked, i.e. vacation, personal leave, training, or other pay that is earned but not worked. (See BNSF Reply page II-38, footnote 78). To support this position BNSF includes Reply Workpapers BNSF.RP.WP.II-A-0106-0107. These workpapers are two non-consecutive pages from a maintenance agreement covering a specific group of locomotives that

to maintain. These locomotives had been leased by . to BNSF's predecessor the BN. This agreement only applies to the locomotives leased by BNSF from pursuant to an The locomotives covered under this agreement were originally identified as having road numbers through inclusive. (See Otter Tail Rebuttal Workpapers, Vol. III, pp. 5169-5171). The maintenance agreement shows

referred to in BNSF's Reply Workpaper BNSF.RP.WP.II-A-0106. These locomotives are currently The 2002 train movement none of these locomotives were used in Otter Tail service. The maintenance agreement was not included by Otter Tail in its Opening or Reply workpapers because it was not applicable to Otter Tail service.

BNSF has not produced any evidence that supports its claim of unreimbursed labor costs applicable to locomotives in Otter Tail service.

(iii) BNSF Claims that "Otter Tail Fails to Account for Overhaul Expenses"

BNSF claims that it incurs labor costs related to locomotive overhauls that are not covered by the (See BNSF Reply at II-38, footnote 78, last sentence). Otter Tail will not address this point except to say that it is moot because BNSF's own workpapers show that no

(See line "OH" of BNSF Reply Workpaper BNSF.RP.WP.II-A-0109. This is the only maintenance and overhaul cost data that was provided by BNSF in discovery).

BNSF goes on to use Otter Tail's procedure to determine when overhauls would be performed based on the scheduled time interval or on the mileage based standard. BNSF's recalculation uses Otter Tail's monthly mileage to calculate the year of overhaul but, inconsistently, argues the maintenance issue based on a lesser number of miles per month. Using the BNSF's purported average miles per month for all SD70 locomotives included under the the overhauls would not be performed until 2004 and 2006, respectively. BNSF's calculation is of no value, but they use it to claim that Otter Tail's 34% reduction to system average maintenance cost becomes a increase to system average when the overhauls are added to the maintenance costs. BNSF's calculation does, however, illustrate how inappropriate it is to use BNSF's calculation that includes overhauls even though they were not actually performed.

BNSF also contends that Otter Tail's overhaul procedure is inconsistent with URCS (BNSF Reply at II-39). BNSF contends that URCS normalizes locomotive maintenance, including overhauls, over a three year period. BNSF further contends that Otter Tail's procedure of only including the overhauls due in a particular year is inconsistent with URCS.

Otter Tail's procedure is not inconsistent with URCS because the expense included in URCS for direct locomotive repairs is replaced by the amount developed from the maintenance contracts. The basis upon which the URCS direct locomotive repair cost is computed is replaced by the special study results. The STB's position on including overhauls in the year they actually occur is clearly stated as follows:

> "We agree with Arizona that the variable cost associated with the overhaul of locomotives should only be included in the year the maintenance takes place. Santa Fe's procedure is contrary to the procedure used to develop URCS variable costs, which records expenses when they occur."[34]

(iv) BNSF Claims that "Otter Tail Misapplies BNSF's Maintenance Contracts"

In Reply at pages II-40 to 41, BNSF argues that the mileage rate in the maintenance contract for miles a month should have been used by Otter Tail instead of the mileage rate for miles. BNSF bases this argument on information in its Reply Workpapers BNSF.RP.WP.II-A-0108-0109 that shows that the 2002 average miles per month for all locomotives (not just those in Otter Tail service) under the miles. BNSF contends that the actual SD70 miles in all services of rather than the actual SD70 miles in

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[34] See STB Docket No. 41185, Arizona Public Service Company and Pacificorp v. The Atchison Topeka and Santa Fe Railway Company, at 2 STB 367, 425 decided July 21, 1997.

Otter Tail service of greater than nnual miles, should be used to determine the payments made under these amendments. Otter Tail disagrees and believes that the movement-specific annual miles is the more appropriate.

Otter Tail stated that locomotives used by BNSF in Otter Tail coal service have a higher utilization than the system average utilization, which includes non-coal service. (See Otter Tail Reply at II-A-16). In addition, locomotives in Otter Tail service have a higher level of utilization than the SD70 locomotives This is illustrated from BNSF's own data which purports to show that the average monthly mileage for these locomotives was miles in 2002 compared with Otter Tail's miles per month.

(v) BNSF Claims that "There is No Reason to Expect BNSF's Maintenance Costs for the Locomotives that Power the Big Stone Train to be Less than BNSF's System-Average Maintenance Costs"

BNSF claims in Reply at pages II-42 to 43 that one should not expect locomotive maintenance costs for Big Stone trains to be less than system-average, but Otter Tail shows below that even BNSF's own data disprove BNSF's claim.

BNSF's claim responds to the following Otter Tail positions: (1) Otter Tail's discussion that using AC locomotives results in lower maintenance costs than the older DC locomotives, and (2) Otter Tail's position that the average age of locomotives in Otter Tail service is only years, whereas system average locomotives are years old (See Otter Tail Reply, pages II-A-15 and 16), leading to the expectation that maintenance costs should be lower for the Otter Tail specific locomotives.

BNSF states:

BNSF misses the point. BNSF appears to be saying that its system average costs somehow already reflect lower than system average costs because the Otter Tail train uses only AC locomotives whereas, hypothetically, locomotives might have been required if DC locomotives were utilized. But BNSF makes the wrong comparison. Because BNSF used system average locomotive maintenance costs, not DC locomotive maintenance costs, BNSF should have made the comparison to the number of locomotives powering a system average train (that is, shown at line 3 of Table II-A-24, below). The proper comparison works against BNSF's hypothesis. A proper comparison would also have to consider other factors such as the Otter Tail vs. system average tons per train and the Otter Tail vs. system average length of haul per train. BNSF has presented no evidence to illustrate this comparison. Otter Tail presents this evidence in Table II-A-24, below:

[35] See BNSF Reply, page II-43.

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Table II-A-24

Comparison of Statistics Big Stone Trains vs. BNSF System Average - 2002

Item		Source	BNSF System 2002 [1/]	Otter Tail Trains 2002 [2/]
	(1)	(2)	(3)	(4)
1.	Loco Unit Miles (000)	A1L108C01		
2.	Train-Miles (000)	A1L104C01		
3.	Locos Per Train	L1 / L2		
4.	Gross Ton-Miles (000)	A1L122C01		
5.	Tons Per Train	L4 / L2		
6.	Car Miles (000)	A1L114C01		
7.	Cars Per Train	L6 / L2		
8.	Tons Per Car	L4 / L6		
9.	Tons Revenue Freight (000)	A1L124C01		
10.	Miles - One Way	L4 / L9/2		
11.	GTM's Per Train	L5*L10		

[1/] Source: STB's BNSF 2002 URCS, "BNSF02.UR2."

[2/] Source: "T&O Otter Tail Average.123."

Each of these statistics confirm Otter Tail's expectation and proves that BNSF is wrong in not expecting efficiencies in Otter Tail's locomotive maintenance costs. The Otter Tail trains are longer and heavier and are powered by more locomotives. Otter Tail's quantitative locomotive maintenance cost comparison based on service-specific maintenance costs is "demonstrably superior" to the qualitative comparison proffered by BNSF that misses the mark. On balance, one would expect Otter Tail-specific locomotive maintenance costs to be less than system average locomotive maintenance costs.

In addition, BNSF does not even mention that URCS only distributes 55% of locomotive maintenance costs to LUM's and the other 45% to GTM's. BNSF fails to discuss this balance of the

locomotive maintenance costs that are based on gross ton miles. BNSF bases its locomotive maintenance costs on the system average GTM's per train and then applies that cost per GTM to the much larger number of Otter Tail GTM's per train. (See Line 11 of Table II-A-24).

Finally, BNSF states in Reply at pages II-42 to 43, "Even if BNSF better utilizes its coal-fleet locomotives than other locomotives in its fleet, Otter Tail has presented no evidence that this higher utilization results in maintenance costs that are lower than system-average." On the contrary, Otter Tail showed this, supra, and in Reply.

Higher utilization does impact the maintenance costs of locomotives. BNSF's maintenance contracts include

So the Board may deduce directly from BNSF's locomotive maintenance contracts with BNSF's locomotive maintenance providers that as utilization increases, locomotive maintenance costs decrease on a per unit basis.

(vi.) Summary - Locomotive Maintenance Costs

In summary, as with other cost components, BNSF has spread system average locomotive maintenance costs over system average service units, whereas Otter Tail has spread Otter Tail train-specific locomotive maintenance costs over Otter Tail train-specific service units. Otter Tail's locomotive maintenance costs are, therefore, "demonstrably superior" to BNSF's, and the Board should accept Otter Tail's locomotive maintenance costs as the best evidence of record.

(c) Locomotive Capital Costs

Otter Tail's position regarding Locomotive Capital Costs was stated in Opening at pages II-A-31 to 32 and in Reply at pages II-A-17 to 35. BNSF's position regarding these costs was stated in Reply at pages II-57 to 62. Otter Tail's Rebuttal makes a minor modification to its Reply costs by reflecting the effective date of the

- **BNSF Claims That Otter Tail's Reliance on " " Is Improper Because N**
  That a Locomotive Is Unavailable for Railroad Service (See BNSF Reply at II-58)

BNSF references the STB's TMPA decision in which it says the Board recognized that maintenance contracts do not account for all maintenance needs. (BNSF Reply II-58). BNSF then proceeds to give examples of circumstances that would not be considered as "unavailable" under the maintenance contracts, i.e. accidents, wrecks or locomotives that run out of fuel. As a result, BNSF contends the maintenance contracts do not measure the availability of locomotives to the railroad for revenue service. However, at Reply pages II-A-24 to 25, Otter Tail showed that during the relevant time period, none of the circumstances referred to by BNSF occurred.

To support the calculation of its locomotive spare margin, BNSF included in its Opening Workpapers an electronic file "Spare margin.xls". These data calculate the hours of all SD-70 locomotives in the · several 2002 time categories related to availability and utilization. These time categories include: "Total Measurable," "Hours Available," "Unavailable SFS," "Unavailable Shop," and "Unavailable Other." The table below quantifies the hours and percentage of the total hours that are in each of BNSF's time categories.

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Table II-A-25
BNSF's Availability and Utilization Time Categories
for SD-70 Locomotives in the Alliance Pool in 2002

Time Category (1)	Number of Hours (2)	Percent of Total Hours (3)	Spare Margin Percent (4)
1. Unavailable Shop			
2. Unavailable Other			
3. Unavailable SFS			
4. Total Unavailable			
5. Available			
6. Total Measurable			

Source: BNSF Opening Workpaper "Spare Margin.xls."
Note: Total hours may not add due to rounding.

BNSF did not provide a description of the hours that are included in each of these categories. (See BNSF Opening at II-54 through II-58). The titles of each category make them somewhat self-explanatory, except for "Unavailable Other." Otter Tail does not know what occurrences are included in that category of unavailability.

BNSF's data in this table shows that the SD-70 locomotives were available percent.[37] In other words, BNSF's own data results in a spare margin of percent for all SD-70 locomotives in 2002. This compares with Otter Tail's percent spare margin calculated for all locomotives including the non-SD70's actually used in Otter Tail service. (See Otter Tail's Opening file "Loco Maint OTP.123"). The table above also shows that the total time in the shops,

[37] Both BNSF and Otter Tail adjusted the number of unavailable hours to exclude hours categorized as "Unavailable SFS." These hours are related to sanding, fueling and servicing (SFS) and have been included in BNSF's own calculation of "Availability Percent." (See "Spare Margin.xls", line 47, column R).

which Otter Tail assumes to be for maintenance, overhauls, accidents and wrecks, equals only percent of the total hours for these locomotives.

In its spare margin calculations and procedure, BNSF has attempted to redefine locomotive spare margin as the additional locomotives required to account for hours when locomotives are not available for service and when they are available for service but not being utilized. Under BNSF's procedure the more time locomotives sit around waiting to be assigned to train service, available but not utilized, the higher the spare margin, i.e. the more additional locomotives are needed. Under BNSF's new definition of spare margin, simply purchasing new locomotives would decrease the fleet's utilization and increase the spare margin requirement. Under BNSF's new definition of spare margin, the lower the utilization of the current locomotive pool the higher the spare margin requirement. This concept is ludicrous on its face. Spare margin is the number, or percent, of locomotives required to replace those not available for service. Otter Tail's procedure for calculating the locomotive spare margin clearly represents this shortfall in availability.

- **BNSF Claims That Otter Tail's Reliance on**

  Due to Insufficient Data (See BNSF Reply at II-58-59)

BNSF and may have temporarily agreed to

however, no such agreement was made between BNSF and

of its other maintenance contractors regarding availability guarantees. In addition, even if there were no availability agreements for the limited number (i.e., of

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[38] BNSF's Reply at page II-59 n.140 cites the sixth covenant to the not being effective from January 29, 2001 "...until the beginning of the first Performance Period under the new Consolidated Full Service Maintenance Agreement." However, even though Otter Tail had requested that BNSF furnish all agreements, BNSF did not furnish this, it is impossible to determine when the availability guarantee on these once again became effective. Otter Tail knows that for of those locomotives the availability guarantee was effective March 1, 2003 when the became effective. The new Consolidated Full Service Maintenance Agreement may have become effective before then.

locomotives involved, Table II-A-25, supra, shows that the availability of those locomotives was still high. Additionally, there were several measures still binding

t locomotives that suggest high availability.

Other than the availability guarantees, the terms of the 4th and 5th Amendments were still in effect during 1Q02 through 1Q03.[39] These amendments called for

Amendment. While Otter Tail was not provided with reports detailing actions taken under the

Otter Tail was provided with reports detailing the

(See BNSF Reply Electronic File

supra.

While BNSF portrays the as meaningless, when they entered the

Tail Opening Workpapers 0502-0504).

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39 See Otter Tail Reply Exhibit II-A-27.

40 Because Otter Tail does not have access to the required records, it is not possible for Otter Tail to determine how much of these Performance Payments was attributable to the performance of locomotives while in Otter Tail service.

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In addition, effective September 9, 2002, a locomotive maintenance agreement between BNSF

Opening Workpapers 0417-0451).

It is apparent that BNSF does not consider as it relates to the performance of its maintenance providers. As discussed above, BNSF's own calculations in its Opening electronic file "Spare Margin.xls" result in an availability for the SD-70 locomotives that is only of one percent different from the availability calculated by Otter Tail for all locomotives in 2002.

- **BNSF Claims That Otter Tail's Application of the Entire First Quarter of 2003 Was Inappropriate (See BNSF Reply at II-59)**

In its Reply, BNSF criticizes Otter Tail for including the availability requirements of the when it was effective on March 1, 2003. In this Rebuttal, Otter Tail has recalculated the spare margin for the locomotives under the This results in a weighted average availability of percent for locomotives under this agreement in 1Q03. (See Otter Tail Rebuttal file "Rebuttal Loco Maint OTP-2003.123"). This adjustment results in a spare margin for locomotives in 1Q03 of percent, which replaces the percent calculated by Otter Tail in its Opening and Reply variable cost evidence.

The change in the effective date of the maintenance adjustment ratio computed by Otter Tail. Even though BNSF did not mention the effect Otter Tail has recalculated its

locomotive maintenance costs accordingly. A related discussion is included, infra, in the locomotive maintenance costs section.

- **BNSF Claims That Otter Tail's Contract Availability Percentage Applied as BNSF's Locomotive Spare Margin Is Mathematically Incorrect (See BNSF Reply at II-59)**

BNSF's position is that the, "spare margin is expressed as a percentage of the actual available time, and not as a percentage of total locomotive hours as Otter Tail calculates" (BNSF Reply II-59).

The maintenance contracts included in Otter Tail's Opening workpapers develop the availability percentage using the total maximum available hours. This time category is identified as "T" in the availability formulas of the contracts.[41] Spare margin for equipment is generally defined as the proportion of locomotives necessary to replace units removed from service for repairs and/or maintenance. In WTU, the Board defined spare margin when they stated, "Spare margin consists of the additional engines needed in reserve to provide service when other locomotives are unavailable." (See WTU, 1S.T.B., 690, fn 109). The spare margin is to account for the difference between the total hours and those for which the locomotives are actually available. The spare margin percentage is a percentage of the total maximum hours that the locomotives were not available due to repairs and maintenance. Otter Tail's procedure correctly calculates the unavailable time deficit that must be covered by spare locomotives. Otter Tail's calculation is mathematically correct.

(ii) Development of Lease Costs

BNSF raised the following two objections to Otter Tail's development of locomotive lease costs: "First, Otter Tail's approach ignores the proper accounting and costing practice to treat the sawtooth nature of the locomotive lease payment schedules"; and "Second, Otter Tail's failure to use the lease costs of the actual locomotives that powered the Big Stone trains is contrary to Board

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41 See Otter Tail's Opening Workpapers 0434-0438, 0502-0504, 0533-0538, 0577-0582, and 0613-0618.

precedent."[42] As will be shown below, both of BNSF's claims had been anticipated and fully rebutted in Otter Tail's Reply.

Responding first to BNSF's first objection, Otter Tail's Reply, page II-A-32, pointed out that "...BNSF has also based its lease costs on the average lease rate over the life of the lease agreement, the exact procedure rejected by the Board in WPL." Otter Tail also pointed out that the Board in "WPL rejected the railroad's [that is, Mr. Fisher testifying for the railroad] calculation of lease costs '...based on the average lease rate over the life of the lease agreement...' (WPL, page 57)." The Board in "WPL rejected that method stating that the lease rates should be for the time period being costed, not the average over the life of the lease because that average "...would likely produce a different lease cost from that actually incurred ..." during the time period being costed. (WPL, page 58)." In Reply at pages II-A-32 to 33, Otter Tail went on to cite additional documentation that BNSF is wrong to apply the average lease rate over the life of the lease, but that material will not be repeated here.

Next, responding to BNSF's second objection regarding Otter Tail's alleged failure to use the lease costs of the actual locomotives that powered the Big Stone trains, Otter Tail anticipated BNSF's objection and fully rebutted it in Otter Tail's Reply at pages II-A-17 to 20 and at page II-A-32. There Otter Tail explained that it has used the actual locomotives used in Otter Tail service to weight each locomotive type in its calculation of locomotive capital costs. On the other hand, BNSF's calculation of the capital costs associated with the actual locomotives used does not take adequate account of the fact that the locomotives that BNSF uses as its basis are used in Otter Tail service only for a few weeks out of the entire year (See Otter Tail Reply, page II-A-18), but BNSF's

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42 See BNSF Reply at p. II-60.

calculations assume that these locomotives are used in Otter Tail service during the entire year. Otter Tail's Reply goes on to cite Board precedent and to further explain why Otter Tail's capital costs are the best evidence of record.

At page II-A-34 and 35, Otter Tail's Reply also cites procedural errors made by BNSF in its determination of the actual locomotives used in Otter Tail service.

BNSF used a different group of locomotives for each of its three locomotive-related cost calculations. For determining spare margin, BNSF used only 1 SD70's even though more than five other locomotive types were used to provide the Otter Tail service. For determining locomotive maintenance costs, BNSF used system average locomotives even though the maintenance cost characteristics of the actual locomotives used to power the Otter Tail trains differ dramatically from the maintenance costs of the much older system average locomotive. Only for weighting the lease costs of each locomotive type used to provide the Otter Tail service did BNSF utilize the actual locomotives.[43] On the other hand, Otter Tail weighted all three of these cost categories by their hours of actual usage in Otter Tail service.

(iii) The Calculation of Average Acquisition Costs

BNSF's claim regarding the calculation of the average acquisition costs was already raised with its second objection discussed in the immediately preceding sub-section on the development of lease costs. As already stated, Otter Tail correctly weighted the acquisition costs related to each locomotive type by that locomotive's relative usage in Otter Tail service. Due to BNSF's procedural errors cited in Otter Tail's Reply pages II-A-34 and 35, BNSF did not weight their capital costs based on the actual locomotives used in Otter Tail service.

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[43] Even then, as cited in Otter Tail's Reply at pages II-A-34 and 35, BNSF made procedural errors in identifying the actual locomotives used in Otter Tail service.

(d) **Maintenance of Way Costs**

At pages II-A-23 through II-A-26 and Exhibit II-A-3 of Opening, Otter Tail explained the procedures it followed to calculate line specific roadway maintenance of way costs over the Otter Tail route along with the data used to develop the specific costs and justification for the Board's adoption of Otter Tail's calculation. Based on Otter Tail's analysis, presented in Opening, maintenance of way costs are of system average costs (i.e., the system average costs were adjusted by a ratio of

In its Reply, BNSF criticizes Otter Tail's line specific analysis and continues to rely upon a system average maintenance of way calculation. BNSF also restates Otter Tail's calculation at pages II-17 through II-26 and concludes that if properly applied, Otter Tail's line specific analysis would result in line-specific maintenance of way costs that are 20% greater than system average. To accomplish this result, BNSF identifies seven (7) "significant errors" in Otter Tail's analysis. BNSF's claimed seven (7) "significant errors" are addressed below.

1. Issues related to the line segments included in Otter Tail's analysis:
   a. Otter Tail included line segments that are not on the issue route.
   b. Otter Tail incorrectly calculated gross ton-miles for three (3) line segments.
   c. Otter Tail included negative operating expenses associated with a Location Identification that should not be included.
2. Otter Tail's analysis does not include all expenses associated with the issue route because some expenses are not allocated.
3. Otter Tail improperly reduced maintenance of way costs to exclude switching expenses.
4. The seven (7) percent reduction included by Otter Tail to account for a difference between the expenditures reported in BNSF's cost center data produced in discovery to Otter Tail and the total maintenance of way expenses reported in BNSF's Annual Report Form R-1, Schedule 410 is improper.

5. Otter Tail incorrectly applies the BNSF system average variability factor to its line segment specific results.

6. Otter Tail inappropriately uses expense data for only one year.

7. Otter Tail improperly fails to account for its proportionate share of maintenance of way costs because Otter Tail does not make an adjustment for its heavy-wheel load traffic versus the other traffic on the line segments.

In the remainder of this section of Rebuttal, Otter Tail explains why each of BNSF's criticisms of Otter Tail's analysis are not valid. BNSF's claim that direct maintenance of way costs for the Otter Tail route exceed system average costs[44] is based on faulty assumptions and mathematical errors. BNSF's attempt to push roadway maintenance of way costs up to system average levels (or higher) should be rejected. Otter Tail's line-specific analysis produces the most accurate answer for roadway maintenance of way costs for the route traversed by Otter Tail trains.

(i) Line Segments, Gross Ton-Miles and Negative Operating Expenses

BNSF claims that Otter Tail included line segments that are not on the issue route. Specifically, BNSF argues that Otter Tail's analysis should not include miles related to the line segment south of the Belle Ayr mine to Shawnee Junction and the line segments that extend from Reno Junction to the Black Thunder and Jacobs Ranch mines.[45]

BNSF's position is wrong for four (4) reasons. First, in Opening and Reply, Otter Tail developed a single ratio of Otter Tail line specific to BNSF system average maintenance of way unit costs. This single ratio had to reflect all the mines from which coal was shipped to Big Stone. Otter Tail historically has purchased PRB coal for its Big Stone Plant from Belle Ayr and Eagle Butte and from five (5) mines including Cordero, Caballo Rojo, Coal Creek, Rochelle and Black Thunder that

44 See BNSF Reply at pages II-17 to II-18.
45 See BNSF Reply at page II-20.

are south of Belle Ayr.[46] Second, Otter Tail's complaint seeks rate prescriptions from each of the thirteen mines that make up the PRB, i.e., from the Buckskin mine in the North to the Antelope mine in the South. Third, BNSF does not conduct different maintenance of way practices to the different mines of the PRB. Fourth, BNSF's Reply evidence follows Otter Tail's approach in that it analyzes the Belle Ayr and Eagle Butte mines together in its analysis of actual maintenance of way expenses.[47]

BNSF's second point is that Otter Tail incorrectly calculated gross ton-miles for three (3) line segments. The 3 line segments are:

1. SD/MN state line to Andover, SD (Mileposts 600.71 to 680.50 on line segment 2004);
2. Thunderhawk, SD to the ND/SD state line (mileposts 895.51 to 903.00 on line segment 2005); and
3. ND/SD state line to Adams county/Perkins county line(Mileposts 903.01 to 904.00 on line segment 2005).

BNSF is correct and Otter Tail has corrected the calculation of gross ton-miles for the three (3) line segments.[48] This correction produces a very minor modification to BNSF's actual costs of maintaining the rail lines used by Otter Tail's traffic.

BNSF's third point is that Otter Tail included negative operating expenses associated with a Location Identification ("Location ID") that should not be included in the line specific analysis. The Location ID in question is labeled "503001" and was provided to Otter Tail by BNSF in discovery. BNSF eliminated these operating expenses from its analysis of Otter Tail's maintenance of way costs. The data was provided in response to Otter Tail's Request for Production No. 9 for actual

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46 See Otter Tail Rebuttal electronic file "FERC PRB BIG STONE.xls."
47 See BNSF Reply electronic file "TOTAL ROUTE BY SEGMENT MODIFIED.XLS."
48 See Otter Tail Rebuttal electronic file "Rebuttal Route.xls."

maintenance of way data for locations traversed by Otter Tail unit trains. Otter Tail's Request For Production No. 9 requested the following:

> For each year or partial year 1999 to the present, please produce all documents, in a computer-readable format to the extent available, including all necessary documentation, containing or related to division specific, area specific, line-specific, staff function within area, or location specific maintenance of way and structures expenditures: (i) for each division, area line segment, staff function within area or location of the BNSF system traversed in whole or in part by any Otter Tail train between Origins and Destination: and (ii) for the entire BNSF system.[49]

In response to this request, BNSF produced, at Bates Number BNSF/OTP 06391, a compact disk containing electronic file "REPLY TO REQUEST NO. 9.xls." Otter Tail distributed the operating expenses associated with Location ID 503001 over all of the remaining Location IDs contained in the discovery data. BNSF simply excluded the operating expenses associated with Location ID 503001. BNSF's exclusion of these monies is incorrect because BNSF has already identified Location Code 503001 as part of the Otter Tail route.

In response to BNSF's maintenance of way arguments, Otter Tail's Rebuttal now develops three (3) separate ratios of Otter Tail line-specific to BNSF system average maintenance of way unit costs.[50] These three (3) ratios represent the following movements:

- Eagle Butte to Big Stone reflecting only line segments between Eagle Butte and Big Stone;
- Belle Ayr to Big Stone reflecting only line segments between Belle Ayr and Big Stone; and

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49 See Rebuttal Workpaper Vol. III, p. 5175.

50 See Otter Tail Rebuttal electronic workpapers "Rebuttal MOW Adjustment - Eagle Butte.xls," "Rebuttal Route - Eagle Butte.xls," "Rebuttal MOW Adjustment - Belle Ayr.xls," "Rebuttal Route - Belle Ayr.xls," "Rebuttal MOW Adjustment - All Other Orin Mines," "Rebuttal Route - All other Orin Mines.xls."

- All Orin Line mines except Belle Ayr reflecting only line segments between Black Thunder and Big Stone.

In calculating Otter Tail's variable maintenance of way costs, the Eagle Butte ratio is applied to movements from Eagle Butte and the other mines on the Eagle Butte branch; the Belle Ayr ratio is applied to movements from Belle Ayr; and the "All Orin Line mines except Belle Ayr" is applied to all the other mines on the Orin Line.

(ii) Allocation of Expenses

On pages II-19 and II-21 through II-22, BNSF criticizes Otter Tail for excluding maintenance of way expenses that are not captured on the line-specific level but rather are captured by a higher cost center level. BNSF is attempting to discredit Otter Tail's line-specific analysis by pointing to alleged deficiencies in data BNSF produced to Otter Tail in discovery, thus asserting that BNSF did not produce the data that Otter Tail requested.

BNSF points to a September 6, 2002 letter from BNSF to Otter Tail as support for its position that BNSF notified Otter Tail that the line-specific cost center data being produced did not correlate to the Annual Report Form R-1, Schedule 410[51] but BNSF fails to mention that it refused to provide system maintenance of way expenses captured in all line-specific, supervisory, regional or system cost centers as requested by Otter Tail.[52] If BNSF had produced this data, Otter Tail would be in a position to respond specifically to BNSF's claims.

In attempting to justify its position, BNSF included in its Reply a special study that purports to show that of BNSF's 2001 maintenance of way expenses reported in Annual Report Form R-1, Schedule 410 are not captured in any line-specific cost center of Location ID.[53] The

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51 See BNSF Reply Workpaper BNSF.RP.WP.II-A-0053 to 0057.
52 See Rebuttal Workpaper Vol. III, pp. 5180-5182.
53 See BNSF Reply electronic file "R-1 MOW EXPENSE QUERY 2001.XLS."

electronic file supporting the did not contain the logic used by BNSF to assign each expense in Schedule 410 to one of three (3) groupings: system, state, or all other if the expenses did not fit into either of the first two. The third group was intended to include all line-specific expenses.

On October 17, 2003, Otter Tail requested workpapers used to assign the expenses to the three (3) groups. BNSF responded to Otter Tail's request on October 27, 2003 by stating "that there are no additional workpapers."[54] However, Otter Tail includes the figure to eliminate BNSF's argument that Otter Tail's analysis is flawed because it does not contain all maintenance of way expenses.

(iii) Switching Expenses

On pages II-19, II-22 and II-23, BNSF criticizes Otter Tail for utilizing a ratio of running maintenance of way monies to total (running and switching) maintenance of way monies from BNSF's 2001 URCS formula. BNSF asserts that Otter Tail's adjustment ratio is inappropriate because the data that BNSF produced in discovery to Otter Tail does not include switching expenses as BNSF only produced data for running segments. BNSF's production and subsequent admission that it produced incomplete data to Otter Tail is in direct violation of its obligation to produce documents responsive to Otter Tail's legitimate discovery requests.

Otter Tail did not limit its request to running segments in discovery[55] and had every expectation that the data BNSF produced in discovery contained expenses for all locations traversed in whole or in part by any Otter Tail train. In a May 14, 2002 decision in the WPL proceeding, the STB stated that shippers cannot be faulted for not including data that was not provided to it by a railroad.[56]

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54 See Rebuttal Workpaper Vol. III, page 5198.
55 See Otter Tail's Request For Production No. 9 at Rebuttal Workpaper Vol. III, 5174-5175.
56 Docket No. 42051, Wisconsin Power & Light Co. V. The Union Pacific Railroad Company, STB served May 14, 2002, page 17. See Rebuttal Workpaper Vol. III, pp. 5210-5211.

On October 17, 2003, Otter Tail requested workpapers relating to BNSF's Reply evidence and as part of that request, posed three (3) questions to the BNSF requesting support for BNSF's claims that the discovery data it produced does not contain switching related expenses. The three (3) questions were labeled Question No. 4, 5 and 6 and are listed below.[57]

4. Please provide all workpapers that support the statement at page II-23 that "the location IDs that Otter Tail used to calculate MOW expenses along the issue route included only running segments and do not include location IDs to which switching expenses are reported."

5. Please provide the location IDs to which switching expenses are reported along the issue route.

6. Please provide in a computer readable format the following data for each location ID provided in response to Request No. 5 above:

   a. 2001 expense;

   b. Account;

   c. Rollup Center;

   d. Rollup Center Description;

   e. Cost Center;

   f. Cost Center Description; and

   g. Cost Code.

BNSF provided a response to question number 5 which listed the Location IDs along the route traversed by Otter Tail trains but objected to producing data responsive to questions 4 and 6. BNSF's objection to Otter Tail's legitimate workpaper request is another ploy by BNSF to deny data to Otter Tail and the STB. Without this data, BNSF cannot demonstrate (and Otter Tail cannot respond to)

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[57] See Rebuttal Workpaper Vol. III, pp. 5185-5186.

the claim that its maintenance of way monies provided in discovery do not include monies related to yards.

(iv) Discovery Maintenance of Way Cost Center Data and Maintenance of Way Data in BNSF's R-1

On pages II-19 and II-23 through II-25, BNSF criticizes Otter Tail for adjusting the line-specific maintenance of way cost center expense data for year 2001 that BNSF produced in discovery to the maintenance of way expenses reported in BNSF's 2001 Annual Report Form R-1, Schedule 410 (Line 151, column F).[58] BNSF argues that the line-specific cost center data is comprised of different items than those that are used in the Annual Report Form R-1, Schedule 410. BNSF is once again attempting to discredit Otter Tail's line-specific analysis by 1) pointing to alleged deficiencies in data BNSF produced to Otter Tail in discovery and 2) diverting attention away from the fact that BNSF did not produce the data that Otter Tail requested.

BNSF points to a September 6, 2002[59] letter from BNSF to Otter Tail as support for its position that BNSF notified Otter Tail that the line-specific cost center data being produced did not correlate to the Annual Report Form R-1, Schedule 410. BNSF fails to mention that it refused to provide system maintenance of way expenses captured in all line-specific, supervisory, regional or system cost centers.[60] Specifically, BNSF, in refusing to provide the requested data, stated "we have determined that production of line-specific data for BNSF's entire system would be extremely burdensome." If BNSF had produced this data, Otter Tail would be in a position to respond to BNSF's claims. BNSF has not proven that Otter Tail's adjustment is not appropriate.

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58 Otter Tail's adjustment is shown in Otter Tail's Opening electronic workpaper at "DEVELOPMENT OF MOW ADJUSTMENT Ratio.XLS."

59 See BNSF Reply Workpapers BNSF.RP.WP.II-A-0053 to 0057

60 See Rebuttal Workpaper Vol. III, pp. 5180-5182.

(v) Variability

On page II-25 in its Reply, BNSF argues that Otter Tail's use of BNSF's system average variability percentage for running maintenance of way expenses in its line-specific analysis is incorrect as explained in Otter Tail's Reply Exhibit II-A-24, pages 14 to 21. BNSF's position regarding the use of line-specific variability percentages is wrong. Much of Otter Tail's Reply evidence in this regard is equally applicable to BNSF's assertion related to maintenance-of-way variability.[61]

In its restatement of Otter Tail's line-specific maintenance of way analysis, BNSF does not use a line-specific variability percentage for running maintenance of way costs. Instead it uses the same system average variability percentage that Otter Tail uses.

(vi) Time Period of Maintenance of Way Data

BNSF criticizes Otter Tail at pages II-20 and II-25 for Otter Tail's use of only one year of data (i.e., 2001) in its analysis of maintenance of way costs. As Otter Tail explained in Opening at pages II-A-25 and II-A-26, the data provided by BNSF in discovery for additional years (i.e., 1999, 2000, and 2002) was incomplete and unusable.[62] Otter Tail believes that the use of BNSF's 1999, 2000 and 2002 data would have dramatically understated actual MOW costs. In its Reply, BNSF does not respond to Otter Tail's conclusions regarding the incomplete maintenance of way expense data BNSF produced for years 1999 and 2002, but instead focuses on 2000 data only.

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61 In particular, note Exhibit II-A-24, page 17 citing the evidentiary requirements to establish acceptable cost relationships. BNSF offered no evidence supporting diverging from system average MOW variability except to cite system average URCS MOW variabilities for 2 years. Otter Tail uses the latest URCS system average MOW variability.

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On Opening in footnote 25 at page II-25, Otter Tail explained that the year 2000 line specific operating expense data for the Otter Tail route was negative. BNSF in its Reply states, in footnote 45 on pages II-25 and II-26, that the reason for this negative is due to Otter Tail's inclusion of the operating expenses associated with Location ID 500001. As Otter Tail explained above in this Rebuttal, BNSF's exclusion of Location ID 503001 is incorrect because BNSF has already identified Location Code 503001 as part of the Otter Tail route. That argument applies to Location ID 500001 as well.

(vii) Otter Tail's Share of Maintenance of Way Costs

BNSF criticizes Otter Tail's analysis for not considering that Otter Tail's traffic is heavy-wheel load traffic and therefore causes more damage to track structures. The studies that BNSF includes as support in its Reply at workpaper pages BNSF.RP.WP.II-A-0066 to 0085 show that damage is related to loading weights but they do not provide a correlation between damage and costs. As the STB wrote in WPL, "We have no evidence that wear rates and maintenance costs are directly related."[63] In other words, even with the lower unit costs over the Otter Tail route based on the line specific data, coal pays a larger share of the costs because heavy loading coal generates more gross ton-miles than other, lighter loaded, commodities.

(viii) Summary - Maintenance of Way Costs

Otter Tail has calculated line-specific maintenance of way costs using actual data produced by BNSF in discovery. BNSF did not take issue with Otter Tail's general approach but instead attempts to discredit the data that it provided. BNSF has not proven its contentions and its attempt to force Otter Tail, through BNSF's actions in discovery, to use system-average maintenance of way and

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[63] See WPL at page 51.

structures costs should be rejected. Otter Tail's line-specific analysis of roadway maintenance of way costs for the Otter Tail route is the most accurate and should be accepted. Exhibit II-A-38 contains the results of Otter Tail's line-specific maintenance of way analysis. The restated ratios of Otter Tail line specific maintenance of way costs to BNSF system average maintenance of way costs equal [64]

(ix) Joint Facilities Costs

Otter Tail's position regarding Joint Facilities Costs was stated in Opening at pages II-A-18 and 19, and II-A-26. BNSF used URCS system-average expenses in developing the variable costs for Otter Tail's route of movement.[65] BNSF's use of system average costs is contrary to the STB's preference for line-specific costs. Otter Tail's use of actual joint facility expenses in its maintenance of way line-specific analysis is far superior to BNSF's use of system-average experience. Otter Tail continues to rely on this approach in Rebuttal.

(e) Crew Wage Costs

In Opening and Reply, Otter Tail crew wage costs were based on BNSF payroll data provided in discovery as well as

. In contrast, while BNSF uses the discovery payroll data, the development of its cost evidence relies on generalized statements made by BNSF field personnel and, in Reply, on three unidentified and undated pages from what appears to be a crew consist agreement between the UTU and an unidentified Railroad,[66] resulting in a significant overstatement of the crew wage costs attributable to Otter Tail unit coal trains.

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64 See Otter Tail Rebuttal electronic workpapers "Rebuttal MOW Adjustment - Eagle Butte.xls, "Rebuttal MOW Adjustment - Belle Ayr.xls," and "Rebuttal MOW adjustment - All Other Orin Mines.xls."

65 See BNSF Reply p. II-11.

66 See Otter Tail Rebuttal Workpaper Vol. III, pp. 5212-5215.

The causes of BNSF's crew wage overstatements may be broken down into six categories as follows:

(i) **Loading Crews:** In its Reply, BNSF misinterprets the TAR data and overstates the loading crew wages for coal trains originating at Eagle Butte mine;[67]

(ii) **Productivity Fund:** BNSF introduces a new, unsubstantiated wage payment, claiming it "failed to include"[68] these wages in Opening, even though the payroll data provided in discovery included all wage payments for any employee who worked on at least one Otter Tail train;

(iii) **Work for Other BNSF Shippers:** BNSF fails to adjust the calculated wages for obvious instances where the Otter Tail crews perform work for other BNSF shippers;

(iv) **Payroll System Errors:** BNSF fails to adjust the calculated wages for obvious errors in the payroll data, that is expenses chargeable to some other train, not the Big Stone train;

(v) **Road Switch Crews:** BNSF overstates the wages attributable to Otter Tail traffic for road switch crews; and

(vi) **Non-Train Related Mark-up:** The non-train related mark-up percents are applied to all crew wages to capture vacations, training, and other non-train specific wage payments. In the development of this mark-up percent, BNSF in Reply continues to use a mathematically flawed methodology, one that does not conform to the methods previously accepted by the STB.

(i) Loading Crews

In Reply BNSF corrects its understatement of Belle Ayr Mine loading crew wages. However, BNSF's correction to its Eagle Butte crew wages, where BNSF generally uses crews, results in an overstatement. While the parties employed somewhat different procedures to determine loading crew costs, both parties included the following steps: 1) the cost per loading crew was estimated from BNSF payroll records, 2) the number of trains on which each loading crew

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67 As noted in Otter Tail's Reply, at page I-4, although coal moved to Big Stone from Cordero and Caballo Rojo Mines, BNSF elected not to present any cost evidence for those moves.

68 See BNSF Reply Narrative at page II-45.

worked was estimated from BNSF's TARs, and 3) the cost per loading crew per train was calculated by dividing 1) by 2).

To justify including the crew wages for an entire crew (nearly $ for trains originating at Eagle Butte, BNSF consultants prepared a "Loading Crew" analysis[69] of the TARs Otter Tail utilized to develop the Eagle Butte loading crew wage allocation.[70] BNSF's analysis misinterprets the notations made by the conductors on the TARs and, thus, errs in tallying the total round-trips handled by these crews. BNSF concluded that these seven crews handled round trips. Therefore, BNSF includes wages for This conclusion is flawed because BNSF's consultants failed to interpret the TAR notations correctly, as follows:

(See Otter Tail Rebuttal Workpaper Vol. III, p. 5218).

69 See Otter Tail Rebuttal Workpapers Vol. III, pp. 5216-5217.
70 See Otter Tail Rebuttal Workpapers Vol. III, pp. 5218-5224.
71 Ibid.

REDACTED

[72] CLOADG1 train number identified by matching crew names and on duty times shown in Train Activity Reports to date in payroll file.
[73] Ibid.
[74] Ibid.
[75] Ibid.

REDACTED

The conductors' TAR notations, for the most part, indicate that although the turn crews out of

These loading crews can and do perform work for other shippers after delivering their empty trains to the mine and returning to

By claiming the same loading crew costs for trains loaded at Eagle Butte as at Belle Ayr, BNSF would have us believe that BNSF pays outside contractors to perform work that its own employees perform elsewhere and yet BNSF receives no form of crew wage savings. While Otter Tail accepts

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[7] Five of the seven sample trains (5 ÷ 7 = 71%)

to complete a round trip, and then still return to the mines to perform work for other shippers as well.

(ii)

In its Reply, BNSF has introduced a new wage payment to the variable cost evidence – the "[redacted] payment, discussed for the first time at page II-45 of BNSF's Reply Narrative. As a justification for this addition, BNSF presents three pages from an unspecified and undated document.[78] These same pages were provided to Otter Tail by BNSF counsel on September 11, 2003 in response to Otter Tail's Second Request for Workpapers relating to payments made under Constructive Allowance Code 32-Reduced Crew Allowance.[79] Specifically, Otter Tail asked for clarification of how Constructive Allowance Code 32 is used and applied in the BNSF payroll system. In response to this request, BNSF counsel stated that "We have attached excerpts from BNSF's Crew consist Agreement which explain the applicability of this allowance."[80] In other words, BNSF identified the payments made under [redacted]." All payments made for CA Code 32 were provided by BNSF in discovery as BNSF/OTP/Tape 132, which contains "all tickets for all individuals who had at least one ticket involving either the Otter Tail train and/or the helper assignments."[81] In Opening and Reply, Otter Tail erroneously excluded [redacted] from the average loading crew wages, interpreting "reduced crew" as 2-man, not 3-man. Payments for CA Code 32 have been included by Otter Tail in the wage calculation in this Rebuttal, and are included by BNSF in both its Opening and Reply.

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78 See Otter Tail Rebuttal Workpaper Vol. III, pp. 5213-5215.
79 See Otter Tail Rebuttal Workpaper Vol. III, pp. 5225-5230.
80 See Otter Tail Rebuttal Workpaper Vol. III, p. 5225.
81 See Otter Tail Rebuttal Workpaper Vol. III, p. 5231.

REDACTED

In response to Otter Tail's workpaper request asking for clarification of the application of this payment, as well as identification of these payments in the BNSF payroll system files, BNSF provided an additional three pages which appear to represent Accounting Department accruals for these funds.[82] No explanation for the development of these reports, nor how the accruals translate into payments to employees through the BNSF payroll system, was provided. In addition, BNSF did not indicate what CA Code this " payment was made under, and BNSF did not identify where any of these payments are located in the "full wages" payroll data file provided in discovery. As stated above, BNSF counsel previously indicated that this " was paid under CA Code 32. BNSF counsel now states that the " should be included as a separate payment, but this separate payment would be in addition to the payment under Constructive Allowance Code 32. Now BNSF counsel would have us believe that BNSF's "full wage" payroll data is not "full" but must be supplemented by the " To add an additional " payment on top of the CA Code 32 payments, as BNSF has done, is a double count resulting in a drastic overstatement of the wages attributable to Otter Tail traffic.

(iii) Otter Tail Crews Performing Work for Other BNSF Shippers

Otter Tail's coal moves in unit trains, solid train sets of loaded coal cars that are delivered as a unit to the plant at Big Stone for unloading, then returned to Aberdeen. Little or no switching is required. In fact, the bulk of the switching carried out by Otter Tail crews is for non-Otter Tail traffic at locations such as Aberdeen that do not have yard crew assignments.

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[82] See Otter Tail Rebuttal Workpaper Vol. III, pp. 5232-5238.

REDACTED

Otter Tail's analysis of the sample TARs revealed BNSF's practice.

Otter Tail adjusted the special study crew wages developed from the BNSF payroll data to exclude wages paid to brakemen, since brakemen were found to be used only

Otter Tail trains performed

In Reply at page II-46, BNSF begins its critique of Otter Tail's adjustments to remove crew wage expenses

[redacted]

[redacted]

[redacted]

83 See Otter Tail Rebuttal Electronic Workpaper "Open-Investigate change in car count.xls."
84 See Otter Tail Rebuttal Electronic workpaper "Open-Switching.xls."

on non-Otter Tail cars at Aberdeen itself with no change in car count for the unaffected Otter Tail trains.

Otter Tail work.

The second adjustment that BNSF disputes, like the brakemen discussed above, relates to work performed for non-Otter Tail traffic by BNSF crews on Otter Tail trains. Although BNSF concedes

, preferring to allow Otter Tail to bear the cost of the other work performed. As noted earlier, Otter Tail's review of sample TARs identified

extensive time switching at Aberdeen.

Train EBSBBAM-02 of

Otter Tail work. The crew for train EBSBBAM-02 arrived for duty

Similarly with train EBSBBAM-18 on 2/16/02, the crew came on

REDACTED

As BNSF admits,[8] . BNSF's inclusion of these non-Otter Tail crew wage costs results in an overstatement of the cost of moving Otter Tail unit coal trains.

85 See Otter Tail Rebuttal Workpaper Vol. III, p. 5239.
86 See Otter Tail Rebuttal Workpaper Vol. III, p. 5240.
87

REDACTED

(iv) **Payroll System Errors**

BNSF questions Otter Tail's adjustment for seven payroll records which contain date and time data different from the other records for the same train. These records were excluded from BNSF's crew wages because they reflect expenses chargeable to some other train, not the Big stone trains. Two of the erroneous records did not warrant any adjustment, one because the train originated in 2001 and was therefore outside the scope of this study, and the second, because its crew wages were not included in the special study due to incomplete and/or missing crew wage segments. As for the remaining five records:

1. In my Opening and Reply,

   same day already existed.[88] OTP maintains that this payment is erroneous and amounts to the same employee being paid twice for the same activity. However, because we cannot be sure that the BNSF payroll system identified and corrected the error, this adjustment made in Opening and Reply is not made in this Rebuttal.

2. Wages for employee

   duty station do not agree with any other payroll record on that train.[89] Review of the sample TARs, which include a TAR for this train, indicated that he did not work on this train.[90] However, because the report date (the date the payroll record was created), the on-duty date (the date for which a claim is made) and the train symbol are the same as in other records, BNSF ignores all the inconsistent data in the other fields, preferring instead to mislead us by claiming Christianson was "properly paid for working the Big Stone train."[91] Examination of payroll records in the "Full Wages" file uncovered another train, train

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88 See OTP Electronic workpaper "Rebuttal-Avg Road Crew Wages per train.xls", TAB "4-adjustments," lines. 44-45.

89 See OTP Electronic workpaper "Reply-Avg Road Crew Wages per train.xls", TAB "4-adjustments," line 57.

90

4.

Once again, we have an obviously erroneous payroll record which BNSF refuses to acknowledge, preferring instead to overstate Otter Tail's crew wage costs.

5. Because BNSF failed to present variable cost evidence for trains originating at Cordero Mine, in BNSF's variable cost presentation. Otter Tail excluded this employee's wages from the costs calculated for Cordero Mine originations because it is an extra conductor's record, and the arrival, departure, on duty, and off duty times do not agree with any other payroll records for this train.[94]

As these five instances demonstrate, BNSF overstated its Otter Tail variable crew wage costs when it ignored blatant flaws in its payroll system's data integrity.

Next, BNSF disputes Otter Tail's adjustment to eliminate wages paid to firemen who are already qualified engineers. Otter Tail maintains these records must be in error, because there is no reason to order a qualified engineer to work as a fireman. BNSF counters by claiming "There are instances when a qualified engineer might be paid as a fireman, including certain required training or recertification."[95] Otter Tail recognizes that training and recertification are requirements for engineers. However, the STB has repeatedly recognized that these training and recertification costs are captured in the mark-up calculation and are paid under the specific CA codes for training or BLE

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92 See OTP Electronic workpaper "Reply-Avg Road Crew Wages per train.xls", TAB "4-adjustments," line 64.
93 See OTP Electronic workpaper "Reply-Avg Road Crew Wages per train.xls", TAB "4-adjustments," line 74.
94 See OTP Electronic workpaper "Reply-Avg Road Crew Wages per train.xls", TAB "4-adjustments," lines 80, 81 and 84.
95 See BNSF Reply Narrative at II-50.

certification.[96] BNSF cannot charge for training and recertification once in the mark-up calculation and a second time in direct wages.

Finally, BNSF disputes Otter Tail's adjustment to exclude wages for an Aberdeen turn-crew that never left Aberdeen yard. Otter Tail omits the wages for this crew not because they never left the yard, but rather because the payroll records associated with this crew are in error. This crew never left Aberdeen yard, but it spent considerable time switching cars and locomotives within the yard. It cannot be verified that the crew worked primarily on Otter Tail traffic. However, the engineer, having worked hours and having never left the yard, being ordered on duty and tying-up only at Aberdeen, could not and should not have earned straight time pay of $ for miles, since the same payroll record shows actual miles of and since the conductor on this crew was paid for a basic day plus overtime. In short, because these payroll records are grossly wrong, they have been excluded.

(v) Road Switch Crews

As noted in Reply;[97] BNSF's calculation of the road switch crew wages attributable to Otter Tail traffic, presented in Opening, is based on broad, generalized statements by local field personnel, resulting in an overstatement of this expense. This overstatement is further exaggerated by the inflated mark-up percents BNSF applies to the road switch crews (discussed in greater detail below). BNSF makes no adjustment to this expense in Reply, overstating it by as much as 400% in 4Q02. Otter Tail's calculation of road switch crew wages, detailed in Reply, is based on an examination of sample TARs to determine the amount of time these crews spent working on Otter Tail traffic. Otter Tail then developed the average wages for the road switch crews based on the BNSF's payroll

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96 See, for example, WTU, 1 S.T.B, 638, 726.
97 See Otter Tail Reply Narrative at pages 40.

data, and calculated the applicable percent of these wages, based on the percent of time spent on Otter Tail operations.

(vi) Non-Train Related Mark-Up

Lastly, in Reply, BNSF does not even address the significant difference between Otter Tail's methodology of calculating the non-train related mark-up and those that BNSF developed. As Otter Tail noted in great detail in Reply at pages II-A-37 to 39, BNSF's methodology is seriously flawed, yielding drastically skewed results due to the restricted sample size resulting from the attempted segregation of non-train related wages by service type, and the allocation of the same non-train related wages multiple times to multiple service types. In Reply, BNSF continues to present the same flawed calculations.

Table II-A-26 below shows the variable crew wage expenses for Otter Tail unit coal trains from Belle Ayr, Eagle Butte, Caballo Rojo and Cordero Mines, as presented by BNSF in Reply, and by Otter Tail in Reply and this Rebuttal. The only adjustment made to Otter Tail's crew wages in this Rebuttal is a correction for the Constructive Allowance Code 32 - Reduced Crew Allowance for BNSF loading crews out of Gillette.

Table II-A-26
Comparison of Special Study Crew Wages for
Otter Tail Power Unit Coal Trains from PRB
Mines to Big Stone, SD - Wages per Round Trip Train

(1)	Otter Tail Reply (2)	Otter Tail Rebuttal (3)	BNSF Reply (4)	BNSF Overstatement of Otter Tail Crew Wages (5)
A. Belle Ayr				
1. 1Q02				
2. 2Q02				
3. 3Q02				
4. 4Q02				
B. Eagle Butte				
5. 1Q02				
6. 2Q02				
7. 3Q02				
8. 4Q02				
C. Cordero				
9. 4Q02				N/A
D. Caballo Rojo				
10. 4Q02				N/A

Source: Otter Tail Reply Electronic Workpaper "Reply-Wages Summary.xls."
Source: Otter Tail Rebuttal Electronic Workpaper "Rebuttal-Wages Summary.xls."
Source: BNSF Reply Electronic Workpaper "BNSF-02-T&E-ADJ-REPLY.123"

(f) Helper Service Costs

Otter Tail's position regarding Helper Service Costs was stated in Opening at page II-A-36 to 37 and in Reply at pages II-A-44 to 46. BNSF's position regarding those costs was stated in Reply at pages II-52 to 55. Neither Otter Tail's Rebuttal nor BNSF's Reply altered cost calculation procedures with regard to this cost component.

At page II-53 of Reply, BNSF states, "The parties disagree, however, on the number of trains per shift that each helper assists and the frequency that the Big Stone trains are assisted by the Belle Ayr and Campbell helpers." On that same page BNSF goes on to state, "In order to reduce the issues before the Board, Messrs. Fisher and Plum use on reply the helps per shift estimated by Otter Tail with one minor adjustment." Otter Tail concurs in BNSF's adjustment, so the only remaining point of contention is the helper frequency at Belle Ayr and Campbell (i.e., Eagle Butte).

(i) Otter Tail's TARs Analysis

Otter Tail based its helper frequency on an analysis of the TARs produced by BNSF in discovery. (See Otter Tail Reply, page II-A-45). BNSF's TARs show that helpers are used of the time at Belle Ayr and of the time at Campbell (i.e., Eagle Butte). In Reply, Otter Tail explained that the use of helper service in the railroad industry has declined due to the use of distributed power ("DP") trains. Both Otter Tail and BNSF make their calculations reflecting the use of DP power in Otter Tail service.[98]

BNSF based its helper frequency of % at each location on the unsupported claims of BNSF's Assistant Vice President, Unit Train Operations. (See BNSF Reply, page II-53). BNSF claims that Otter Tail is wrong for relying on the BNSF's records because "...not all helper crews reported in their TARs the specific train IDs that they helped during their shifts..." (See BNSF Reply, page II-54). Otter Tail critically reviewed this new charge by BNSF and concluded that BNSF was wrong for the following reasons:

- BNSF claims that since no train was identified in certain of the TARs, Otter Tail cannot assume that the Big Stone train was not helped. A review of BNSF's workpapers showing helpers "shoving" trains shows that the vast majority, that is, percent, could not have helped an

[98] See BNSF's Responses to Otter Tail's Fifth Request for Workpapers, October 27, 2003, p. 3, item 11 included as Otter Tail Rebuttal Workpapers Vol. III, p. 5281.

Otter Tail train between the mine and Gillette based on a comparison of the time at which the helpers were shoving trains with the departure time of the Otter Tail train and its arrival time at Gillette. Out of the possible helps based on time criteria, were not applicable because the Otter Tail train was recorded as helped by another helper on that day. (See "Comparison of Helper TARs with OTP Sample Trains.123").

- For five trains that Otter Tail states were not helped, BNSF states that Otter Tail examined the TARs for the wrong day. BNSF is correct regarding four of the five trains, but other factors prevail and even those four trains could not have been helped. One helper

- BNSF claims that helper crews do not record specific train ID's helped in the TARs. That is not a reasonable claim in view of the experience of the Sheridan helper. The vast majority of Sheridan helper Train Activity Reports applicable Train ID's and lead locomotive ID. (See Train Activity Reports included in Otter Tail's Opening Workpapers, Vol. III, 2 of 6, pages 1394-1588). Train Activity Reports identify

(ii) BNSF's Theoretical Locomotive Power Requirement Analysis

In Reply, BNSF attempts to shore up its helper service frequency claims with a theoretical locomotive power calculation that purports to show that "...the Big Stone train requires more tractive effort than that provided by three SD70MACs in order to traverse the helper territory and,

[99] In order to reduce the number of issues in contention before the Board, Otter Tail adopted BNSF's 100% frequency for the use of the Sheridan helper.

consequently, require helper service." (See BNSF Reply, page II-55 and BNSF Reply electronic file "Belle Ayr_Helper Service_Analysis.xls").

BNSF presented this calculation for the Belle Ayr helper service, but it did not make the comparable calculations for the Eagle Butte trains. There are several problems with BNSF's calculation regarding Belle Ayr trains as follows:

- BNSF's calculation used locomotive weights of [redacted] locomotives. (See Otter Tail Opening workpaper Vol. III, Vol 1 of 6, page 719 and Otter Tail Rebuttal Workpapers Vol. III, p. 5246 and p. 5252). This fact alone changes the [redacted] effort exceeds even BNSF's overstated calculation of "Pulling Effort Required to Overcome Grade and Train Resistance."

- BNSF's calculations commit a mathematical error by calculating the pulling effort required based on 4 locos instead of the [redacted] hat operate the Otter Tail train. (See BNSF Reply electronic file "BelleAyr_HelperService_Analysis.xls"). This overstated the required [redacted] conditions.

- BNSF's adhesion percents are wholly unsupported and BNSF did not respond to Otter Tail's request for such support. (See Otter Tail's workpaper request dated October 17, 2003 included as Otter Tail Rebuttal Workpapers Vol. III, pp. 5280-5281 and BNSF's response dated October 27, 2003 included as Otter Tail Rebuttal Workpapers Vol. III, p.5282).

- Based on the adhesion percents listed in the following internet references, BNSF appears to have understated the adhesion percent used: (1) www.railspur.com's Calculations and Formulas state that high adhesion A.C. locomotives have reported adhesion factors of 35% to 38%; and (2) Alaska Railroad's web site describing features and specifications of SD70MAC's state that A.C. locomotives have produced up to 45% adhesion under test conditions.[100]

Otter Tail has uncovered additional facts that refute BNSF's theoretical calculation. Wyoming has a high percentage of days without rain or snow which supports Otter Tail's position that 3

[100] See Otter Tail's Rebuttal Workpapers Vol. III, pp. 5250 and 5254.

REDACTED

SD70MAC's usually have sufficient tractive effort to pull the Otter Tail trains without the use of helper locomotives since even BNSF's corrected calculations show that are sufficient on dry days. (See Otter Tail Rebuttal electronic file "BelleAyr_HelperService_Analysis modified.xls"). The "Wyoming Report for the Free State Project" states that Wyoming, in a typical year, has 109 cloudless days, 85 rainy days and 23 snowy days. Restated, Wyoming has 108 days, or only 29.6% days (i.e., 108/365 = 29.6%) with precipitation which may require helper service, depending on adhesion percent, train weight, and time of day when the train approaches the helper district compared with the time of day that the precipitation is actually falling. In addition, the monthly reports by the National Climatic Data Center (NCDC) for 2002 show 269 clear days, or 73.7%, and only 96 rain or snow days, or 26.3% of days with precipitation, which may require helper service. (See Otter Tail Rebuttal Workpaper Vol. III, pp. 5255-5269).

Otter Tail also discovered that based upon BNSF Reply Workpaper III-B\Capacity\"SD70MAC forces data.ppt,"[101] each SD70MAC operating at up to 6 miles per hour develops 175,500 pounds of force or 526,500 pounds of force for the locomotive consist. This is substantially greater than the pulling effort pounds that BNSF witness Cebula calculates as the "Pulling Effort Required to Overcome Grade and Train Resistance." (See BNSF Reply electronic workpaper "BelleAyr_HelperService_Analysis.xls"). In that same Cebula electronic workpaper, BNSF also states, "Under ideal rail/weather conditions train can climb the hill without helper by using momentum...," and BNSF makes that statement based on its own understated calculation of the tractive effort developed by SD70MAC's.

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[101] Otter Tail has included this BNSF spreadsheet as Otter Tail Rebuttal Workpaper Vol. III, p. 5279.

(iii) BNSF's Locomotives per Train Reflects Extra Locomotives Over Helper Districts

Contrary to BNSF's claims that Otter Tail has understated its Helper Service Costs, a review of Otter Tail's train movement file (that is, Opening electronic file "2002 Trn Mvmnt Loco Hours.xls") shows that Otter Tail has sometimes overstated its Helper Service Costs.

The BNSF train movement file records provide proof that, in certain instances, Otter Tail has double counted helpers already. Three of the sample trains show the exact same locomotive numbers in the fourth and fifth locomotive positions in the train movement file and on the Sheridan Helper Train Activity Reports. (See Otter Tail Rebuttal electronic file "Comparison of Helper TARs with OTP Sample Trains.123, footnotes 4, 5, and 6"). Otter Tail's and BNSF's inclusion of 100% helper frequency double counts the 4th and 5th locomotive.

Exhibit II-A-54 shows the extra locomotives (that is, Locomotives per Train greater than 3) included in the Otter Tail Big Stone locomotive consists and their on- and off-junctions. This exhibit shows that these extra locomotives often travel over recognized helper districts (see column (9) of Exhibit II-A-54) thus providing further documentation that Otter Tail's and BNSF's inclusion of those locomotives in the Locomotives per Train statistics as well as helper service costs constitutes a double count. Because Otter Tail has assumed that BNSF uses the of the time, every instance in which the Sheridan helper district shows up in column (9) of Exhibit II-A-54 is an instance that Otter Tail and BNSF have counted the once in the Locomotives per Train T&O characteristic and a second time in the Helper Service Costs. Even though Exhibit II-A-54 shows that Helper Service Costs are sometimes double-counted by both Otter Tail and BNSF, this double count, amounting to per ton,[102] was not eliminated from Otter

[102] See Otter Tail Rebuttal electronic file "VC Otter Tail Rebuttal Modified Sheridan Helper.123."

Tail's variable cost because to do so would have constituted the submission of new evidence on Rebuttal, which is not permitted.

Supra, Otter Tail points out that helper service has declined due to the use of DP trains. The use of helper service has also declined because at certain locations BNSF has taken additional steps to reduce the use of helpers, helper crews, and the associated Helper Service Costs. BSNF adds

When BNSF takes this step, both the helpers and the helper crews are not needed. Exhibit II-A-54 shows examples of this practice. Additional examples are shown by the sample trains' movement records that show that eight of the sample trains included four or five locomotives between Clearmont and Parkman.

(iv) Summary - Helper Service Costs

In summary, BNSF has not presented support for their use of

whereas the percent of trains helped presented by Otter Tail is supported by 1) the Train Activity Report data, 2) BNSF's train movement locomotive data, and 3) the National Climatic Data Center data. At all helper locations Otter Tail's percent of trains helped remains unchanged for Rebuttal and is the best evidence of record.

(g) Switching Costs

Otter Tail's position regarding Switching Costs was stated in Opening at page II-A-38 and in Reply at pages II-A-41 to 42. BNSF's position regarding these costs was stated in Reply at pages II-14 to 16. Neither Otter Tail's Rebuttal nor BNSF's Reply altered cost calculation procedures with regard to this cost component. Otter Tail's Reply pointed out that the remaining minor difference between that parties ($ per carload or $ per ton) arises because BNSF used too few years

of normalization in its development of the Switch Engine Minute unit cost. (See Otter Tail Reply, page II-A-42 including footnote 81).

(h) Other Costs

Other costs include Carload Originated and Terminated - Clerical, Carload Handling - Other, Expenses for Loop Track Movements, Train Mile-Other, Car Repairs - User Responsibility, EOTD Ownership, and Loss and Damage. Otter Tail's position regarding Other Costs was stated in Opening at pages II-A-34 to 39 and in Reply at pages II-A-42 to 47. BNSF's position regarding those costs was stated in Reply at pages II-13 to 14, II-56 to 57, and II-62 to 63. Neither Otter Tail's Rebuttal nor BNSF's Reply altered cost calculation procedures with regard to these cost components.

c. Conclusion

As described in Otter Tail's Reply and Rebuttal, the evidence submitted by BNSF and Otter Tail differs on a number of cost factors influencing BNSF's variable cost of providing service for unit coal trains moving to Otter Tail's Big Stone Station. Otter Tail has accepted a number of adjustments suggested by BNSF, and restated its variable costs. The results are shown in Table II-A-27 below.[103]

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[103] Otter Tail Opening Evidence variable costs were based on the use of a BNSF 2002 URCS formula using procedures developed by the STB. Otter Tail's Reply and Rebuttal variable costs used the same BNSF 2002 URCS. (See computer files "vc Otter Tail Rebuttal.123" and "UBNSF02.ZIP").

Table II-A-27

Comparison of Otter Tail's Rebuttal and Reply Rates, Variable Cost, R/VC and Jurisdictional Threshold Service in Aluminum Shipper Cars to Otter Tail's Big Stone Station–1Q02 through 1Q03

	Origin/ Time Period (1)	BNSF Common Carrier Rate Per Ton[1/] (2)	Otter Tail's Reply Variable Cost Per Ton (3)	Otter Tail's Reply R/VC Ratio[2/] (4)	Otter Tail's Rebuttal Variable Cost Per Ton (5)	Otter Tail's Rebuttal R/VC R/VC Ratio[3/] (6)	Otter Tail's Rebuttal Jurisdictional Threshold[4/] (7)
A.	**Belle Ayr**						
1.	1Q02	$13.49	$5.00	270%	$5.09	265%	$9.16
2.	2Q02	13.49	5.04	268%	5.13	263%	9.23
3.	3Q02	13.49	5.04	268%	5.13	263%	9.23
4.	4Q02	13.49	5.14	262%	5.23	258%	9.41
5.	1Q03	13.76	5.39	255%	5.51	250%	9.92
B.	**Eagle Butte**						
6.	1Q02	$13.49	$4.87	277%	$4.96	272%	$8.93
7.	2Q02	13.49	4.95	273%	5.03	268%	9.05
8.	3Q02	13.49	4.98	271%	5.06	267%	9.11
9.	4Q02	13.49	5.00	270%	5.09	265%	9.16
10.	1Q03	13.76	5.39	255%	5.52	249%	9.94
C.	**Other - 4Q02**						
11.	Cordero	$13.49	$5.29	255%	$5.36	252%	$9.65
12.	Caballo Rojo	13.49	5.00	270%	5.07	266%	9.13
D.	**Other - 1Q03**						
13.	Buckskin	13.76	5.23	263%	$5.34	258%	$9.61
14.	Rawhide	13.76	5.22	264%	5.33	258%	9.59
15.	Dry Fork	13.76	5.22	264%	5.32	259%	9.58
16.	Fort Union	13.76	5.21	264%	5.31	259%	9.56
17.	Clovis Point	13.76	5.20	265%	5.30	260%	9.54
18.	Caballo	13.76	5.26	262%	5.37	256%	9.67
19.	Cordero	13.76	5.47	252%	5.58	247%	10.04
20.	Caballo Rojo	13.76	5.17	266%	5.28	261%	9.50
21.	Coal Creek	13.76	5.26	262%	5.37	256%	9.67
22.	Jacobs Ranch	13.76	5.36	257%	5.47	252%	9.85
23.	Black Thunder	13.76	5.43	253%	5.54	248%	9.97

Sources: Reply information from Otter Tail Reply, Table II-A-17, page II-A-50. Rebuttal information from Rebuttal Exhibit II-A-55.

1/ BNSF Common Carrier Pricing Authority BNSF 90062 and 90062-A; rates indexed per Pricing Authority.

2/ Column (2) ÷ Column (3).

3/ Column (2) ÷ Column (5).

4/ Column (5) *180%.

Table II-A-27, above, and BNSF Reply Table II-A-6, page II-64 show that the common carrier rates at issue in this proceeding exceed the 180% jurisdictional threshold set forth in 49 U.S.C. § 10707(d)(1)(A). The Board's jurisdiction to adjudicate the reasonableness of the rate established in Common Carrier Pricing Authority BNSF 90062 and BNSF 90062-A clearly is established.

III-A
STAND-ALONE
TRAFFIC GROUP

III-A STAND-ALONE TRAFFIC GROUP

Otter Tail's calculation of the maximum lawful rate under the Stand-Alone Cost ("SAC") constraint of the Board's Coal Rate Guidelines is based upon a hypothetical rail carrier which Otter Tail has named the Otter Tail Railroad ("OTRR"). This Section III-A of Otter Tail's opening evidence is jointly sponsored by Thomas D. Crowley and Robert D. Mulholland. In addition, Dr. Gary M. Andrew and David G. Weishaar sponsor evidence regarding Otter Tail's revenue divisions for cross-over traffic (Section III-A-3.c.). Dr. Andrew is also sponsoring Exhibit III-A-14. Exhibit III-A-13 is sponsored by Frank R. Harder and Stephen C. Nieman, together with witnesses Crowley and Mulholland. Finally, part III-A-4 is jointly sponsored by Philip H. Burris and witness Crowley.

Otter Tail described in detail in Section III-B of its Opening Evidence how the OTRR is designed to provide 1) service between coal mines in the Powder River Basin of Wyoming and the Big Stone Station, 2) transportation of coal from BNSF-served PRB mines for interchange with BNSF and Otter Tail Valley Railroad Company ("OTVRC") for delivery to other utility plants, and 3) the movement of general freight trains in overhead service for interchange with BNSF at Donkey Creek, Wyoming, Moran Junction, Terry and Snowden, Montana and Fargo, North Dakota.

The OTRR rail network extends from mines located on BNSF's Orin Line north through Donkey Creek, then west over BNSF's line to Moran Junction. From Moran Junction the line turns northeast to Glendive, Montana via Terry. From Glendive the line turns east to Fargo, via Mandan, North Dakota, then south to Benson, Minnesota and finally west to Big Stone City, South Dakota. The OTRR also includes the BNSF segment between Glendive and Snowden to the north, as well as the coal mine branch lines from Eagle Butte to Campbell, from Decker to Dutch, from Kuehn to

Sarpy Jct., and from Big Sky to East Nichols. The OTRR covers a total of 1,283.8 route miles.[1] A schematic of the OTRR route appears in Exhibit III-A-1 of Otter Tail's Opening.

Otter Tail further explained how the stand-alone rail network that would most efficiently handle the subject traffic was configured based on current coal purchases by Otter Tail combined with other traffic available to the OTRR. The OTRR's traffic group consists of coal movements in unit trains and other commodities moving in through trains. The OTRR directly serves all of the 13 mines for which BNSF provided rates and service terms in Pricing Authority 90062.[2] The OTRR handles originated coal traffic moving from these mine loadouts to the Big Stone Station and to interchange locations between OTRR and BNSF.[3] In addition to the Big Stone Station, the OTRR handles coal destined to 74 power plants and BNSF's Superior Dock and Cook Coal terminal, as well as 10 industrial facilities.[4] General freight moves in overhead service over OTRR lines and is interchanged to/from BNSF at both ends of the OTRR movement. OTRR performs Intertrain and Intratrain ("I&I") switching on some trains at Fargo.

In response to the Board's November 6, 2003 decision in STB Docket No. 42069, Duke Energy Corp. v. Norfolk Southern Ry. Co. ("Duke/NS"), Otter Tail requested leave to file supplemental evidence. In its Opening Evidence, and in its base case in this Rebuttal Evidence, Otter Tail is presenting, for the first time ever in a stand-alone cost ("SAC") proceeding, evidence of cross-over revenue divisions based upon the actual, market-based revenue divisions of the defendant-railroad. Otter Tail's market-based revenue division calculations were made in response to a decade of Board

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1 This includes Red River Valley and Western ("RRVW") trackage between Brushvale and E. Breckenridge, Minnesota.

2 See Otter Tail Opening at III-A-3; Table III-A-1.

3 OTRR also originates one unit coal train movement that is interchanged with OTVRCat Fargo, ND for delivery to Otter Tail's Hoot Lake plant.

4 See Otter Tail Opening at Exhibit III-A-2.

precedent stating that actual, market-based divisions are the best evidence of the appropriate division of cross-over revenues. In the absence of such evidence in prior proceedings, the Board instead had relied upon, first, a straight mileage prorate method, and then, in all subsequent cases, the modified mileage prorate ("MMP") method to allocate cross-over revenues.[5] In all of those cases, however, the Board clearly stated that these methods were only proxies for actual, market-based divisions.[6] Therefore, Otter Tail was completely surprised when the Board inserted language in its Duke/NS decision, stating that actual divisions would not be "particularly instructive" of the proper allocation of cross-over divisions.[7] The Board also replaced the MMP method with the new MSP method, but without referring to that method as a proxy for actual, market-based divisions.

The Board's abrupt and unexplained departure from a decade of precedent expressing a preference for actual, market-based divisions caused Otter Tail substantial prejudice. Otter Tail's Opening Evidence had developed an algorithm, based upon BNSF's actual divisions, to calculate appropriate divisions for cross-over revenues. In order to stay within the statistical boundaries of its regression algorithm, however, Otter Tail had established a 1.1% mileage floor for the coal traffic included in the SARR traffic group. In other words, an interline movement was included only if each railroad handled the traffic at least 1.1% of the total movement miles.[8] As a result, Otter Tail excluded from its traffic base 31.7 million tons of cross-over coal traffic that BNSF originates in the

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5 See e.g., Bituminous Coal – Hiawatha, Utah to Moapa, Nevada, 10 I.C.C. 2d 259, 267-68, 280 (1994) (adopting straight-mileage method) ("Nevada Power II"); McCarty Farms, Inc. v. Burlington Northern, Inc., 2 S.T.B. 460, 472 (1997) (adopting MMP); FMC Wyoming Corp. v. Union Pac. R.R. Co., STB Docket No. 42022, Slip Op. at 27, note 62 (served May 12, 2000) (using MMP and affirming Nevada Power II and McCarty Farms); Texas Municipal Power Agency v. The Burlington Northern and Santa Fe Ry. Co., STB Docket No. 42056, Slip Op. at 31 (served March 24, 2003) (the last case to use MMP).

6 Id.

7 Duke Energy, slip op. at 20, note 29.

8 OTP Opening Ev. at III-A-19, note 24.

PRB.[9] It is not necessary, however, to exclude this traffic under the Board's newly adopted MSP methodology. Therefore, if Otter Tail had any reason to anticipate that the Board was going to reverse ten years of precedent that expressed a preference for actual divisions, it would not have excluded 31.7 million tons of coal from its SARR traffic group. Accordingly, Otter Tail petitioned the Board and was granted the opportunity to file Supplemental Opening Evidence, in which Otter Tail added the 31.7 million tons of coal that it excluded from its original Opening Evidence traffic base, to reflect the incremental impact of those additional tons on the SARR's operation and investment, and to re-allocate total cross-over revenues using the new MSP methodology.

Otter Tail, however, is not abandoning its use of actual, market-based divisions to allocate cross-over revenues in its Rebuttal Evidence. Otter Tail continues to vigorously contest the Board's departure from precedent in Duke/NS, since the Board decided to alter course in *dicta* that clearly had no bearing on the outcome of that case. As such, the issue of actual divisions was not squarely before the Board in Duke/NS, as it is in this proceeding, and thus arguments on that issue in Duke/NS could not have been fully developed. In contrast, the issue has been fully engaged in the Opening and Reply Evidence of both Otter Tail and BNSF in this proceeding,[10] and Otter Tail will further address the issue in Rebuttal below, consistent with the standards for rebuttal evidence in Duke/NS.

Therefore, Otter Tail's Supplemental Evidence presented an alternative SARR, rather than a substitute SARR, to Otter Tail's primary case. The two SARRs are identical except for (1) the additional 31.7 million tons of coal that the alternative SARR originates in the PRB and interchanges

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9 Id.

10 See, OTP Opening Ev. at I-16 and III-A-17 through 20; BNSF Reply Ev. at I-12 through 17 and III.A-59 through 65.

with the residual BNSF at Donkey Creek and Converse, Wyoming, and (2) the limited impact of those additional tons on the alternative SARR's operation and investment. If the Board accepts the use of actual, market-based divisions in Otter Tail's base case, the alternative case, which is based on the alternative SARR, will be moot and there will be no need for the Board to refer to the alternative Rebuttal Evidence at all. However, if the Board instead chooses to employ the MSP methodology, or any other methodology, to allocate cross-over revenue, it will need to incorporate the alternative Rebuttal Evidence, which has been developed from the alternative SARR.

In its Reply Evidence, BNSF objects to several aspects of the OTRR traffic group. Otter Tail responds to each of BNSF's objections in this Rebuttal. First, BNSF argues that all cross-over traffic in Otter Tail's (or any other complainants') stand-alone railroad should be excluded. Otter Tail explains below why the inclusion of cross-over traffic is one of the fundamental principles of the Guidelines and why BNSF's claim that the use of cross-over traffic should be eliminated from the SAC analysis must be rejected. Second, BNSF seeks to eliminate certain other traffic and tonnages from the OTRR traffic group.[11] These include unit coal trains originating at Southern PRB mines and exiting the OTRR at Converse, Wyoming, based on their claim that this traffic does not share facilities and therefore does not share any costs with the subject traffic. Below, Otter Tail demonstrates that this logic is flawed and contradictory to the evidence presented in this case. In fact, the traffic in question originates at the same mines and traverses the same track as much of the traffic that BNSF includes in its own OTRR traffic group.

BNSF also argues that traffic of certain other coal shippers included in Otter Tail's traffic group should be excluded. BNSF claims that Otter Tail has erred in the application of one of its traffic

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[11] See BNSF Reply at III.A-2 to III.A-3.

selection criteria, resulting in the improper inclusion of coal movements in the OTRR traffic group. Otter Tail addresses this criticism in detail below.

In addition, BNSF attempts to minimize the extent to which coal volumes for movements hauled by the OTRR can be forecasted to increase between 2003 to 2021.[12] Specifically, BNSF claims that Highbridge and Riverside plants will convert to gas in 2006 and will therefore phase out their coal shipments beginning in 2005. BNSF further claims that Otter Tail's calculation of coal volumes shipped to Superior, Wisconsin is erroneous and must be corrected, resulting in volume reduction in years 2011 through 2021.[13] Otter Tail rebuts each of these claims separately below.

In addition, BNSF claims that a significant group of non-coal traffic traversing the OTRR (namely, high-speed intermodal trains or "Z trains") must be excluded based on increases in average transit time over the OTRR relative to the average real-world transit time over the BNSF that results from rerouting the trains via Glendive and Mandan. Otter Tail accepts this criticism and accordingly excluded the traffic from its traffic group.

In its Supplemental Reply evidence, BNSF further excludes 13.7 million tons of general freight traffic from the OTRR traffic group, in addition to the volume it had excluded in its original Reply evidence. BNSF bases these exclusions on statements in recent Board decisions in Duke/NS, Duke/CSX and PPL II. BNSF's exclusion of this additional general freight traffic is based on a misinterpretation of the Board's decisions in the referenced cases.

Having recast the aforementioned standards, BNSF attempts to argue that shifting the non-coal traffic from the BNSF route between Snowden and Fargo via Minot to the OTRR route between

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12 The parties are in agreement regarding forecasted increases for most destinations for the 2003-2021 time period, subject to BNSF's claim that some traffic should be excluded.

13 See BNSF Reply at II-A-39.

Snowden and Fargo via Glendive and Mandan is not permissible under Guidelines. In the discussion below Otter Tail demonstrates that BNSF's analysis is methodologically flawed and incomplete. Otter Tail also identifies for the Board other evidence in the record of this case that confirms that acceptance of this rerouting is correct and in accordance with Stand-Alone principles.

Finally, BNSF is critical of Otter Tail's inclusion of various other non-coal shipments that move over the OTRR in a manner that is inconsistent with the OTRR traffic selection criteria. Included in this group of traffic are grain trains originating at Williston, North Dakota, coal cars originating at Colstrip, Montana, and other carload traffic originating or terminating on the OTRR. As explained below, the inclusion of this traffic resulted from the incomplete data provided by BNSF in discovery and furthermore, the volume and revenues associated with these movements are minimal and have only very slight impact on the Stand-Alone revenue calculation.

Otter Tail rebuts each one of BNSF's claims, and disagrees in large part with BNSF's modification of the OTRR traffic group. Where BNSF has raised legitimate reasons for exclusion of OTRR traffic, Otter Tail has removed that traffic accordingly.

In summary, Otter Tail demonstrates that few changes should be made to the traffic group of the OTRR, that all excluded traffic together has minimal impact on the calculation of the Stand-Alone rate, and that Otter Tail's forecasts of the future tonnages on the OTRR are reasonable and the best evidence of record.

1. OTRR TRAFFIC GROUP

As stated above, BNSF objects to several aspects of the OTRR traffic group in Otter Tail's opening evidence, including Otter Tail's inclusion of cross-over traffic on its stand-alone railroad, its inclusion of traffic originating in the southern PRB and exiting the OTRR at Converse, its

inclusion of coal trains moving a relatively short distance over OTRR compared to the distance traveled over the residual BNSF, its inclusion of traffic to destinations BNSF asserts will not be served by the BNSF in the future, its inclusion of re-routed non-coal traffic, its inclusion of Williston grain trains, and its inclusion of other carload movements. Each of BNSF's objections is discussed separately below.

a. Traffic Grouping Principles - Cross-Over Traffic

BNSF asserts at pages III.A-5 to III.A-19 of its Reply Evidence that Otter Tail's use of cross-over traffic on its stand-alone railroad is improper.[14] BNSF claims that the inclusion of cross-over traffic on a stand-alone railroad is inconsistent with the economic and public policy rationale of the SAC test. BNSF also asserts that the inclusion of cross-over traffic leads to "arbitrary allocation of revenues" and "strategic revenue shifting"[15] by the complaining shipper whose sole objective is to game the SAC analysis and have the challenged rate deemed to be excessive. BNSF's verbiage barely masks its purpose in raising these arguments: to pressure the STB to rewrite the Guidelines, and dismiss almost 10 years of ICC and STB precedent regarding stand-alone cost presentations. The BNSF is wrong both from an economic perspective and a policy perspective.[16]

i. The Principles Of Stand-Alone Cost

Under the Coal Rate Guidelines, a complainant has the option of using the Stand-Alone Cost ("SAC") methodology to determine a reasonable freight rate that should be paid by a shipper that is captive to the railroad. SAC is the cost of constructing and operating a hypothetical stand-alone

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14 BNSF bases this assertion on a declaration produced by its witness Dr. Janusz A. Ordover, included in BNSF's Reply Evidence as Exhibit III.A-2.

15 See BNSF Reply at III.A-11.

16 The following discussion in this section is primarily extracted from a statement provided by Otter Tail witness Dr. George H. Borts, and included as Otter Tail Rebuttal Exhibit III-A-8.

railroad ("SARR") to serve the complainant's traffic under assumed conditions of contestability. Stand-Alone Cost determines the lowest rate for captive traffic, consistent with the need for the hypothetical railroad to cover its costs, without subsidizing the traffic of other shippers that also use the SARR and/or the traffic of railroads that connect with the SARR. Under principles of constrained market pricing ("CMP"), the SARR is assumed to be free to enter and exit the market without any cost barriers or other barriers to entry, and to be free to serve the same traffic carried by the incumbent.

In designing a SARR, the complainant is free to choose the traffic the SARR will carry, both issue traffic and non-issue traffic. Moreover, the complainant may configure its SARR in a manner that is optimal to the hypothetical owner and provides the most efficient railroad operations for the SARR traffic group. This means that the SARR need not cover the entire geographic area or market served by the incumbent, and can interconnect with other railroads, including the incumbent at hypothetical interchange points. Traffic that is interchanged with the incumbent or other railroads at such hypothetical interchange points is called "cross-over traffic," and the SARR is permitted to receive revenue and profit from its carriage as long as the complainant can demonstrate that the SARR can transport this traffic and cover the costs of carrying out such operations.

The use of cross-over traffic makes sense from an economic standpoint, because it preserves the SARR's options to enter the market without the need to replicate the entire rail delivery system of the incumbent. In a contestable environment, a firm has the option to decide which productive input services it will provide for itself and which it will purchase in the open market. By constructing a rail system that relies on interline traffic, the SARR has in effect made a decision to purchase some of its input services from other producers. BNSF and its witness, Dr. Ordover, argue

that cross-over traffic should be denied to the SARR, and that it should be configured to carry its traffic from origin to destination as a closed rail system. But this is inconsistent with contestability and has the same effect as a barrier to entry.

A strong implication of contestability is that no customer or group of customers is subsidizing any other customer or group of customers. Subsidy would not survive under conditions of free entry and exit, for it would induce the disadvantaged customer to provide its own service at lower cost. If a customer is charged more than the cost of service, then it is in effect subsidizing other customers receiving service from the same firm. In a contestable market the disadvantaged customer can organize its own firm or find another firm in the market that will gladly serve it at lower cost.

To apply this principle, it is necessary to define what is meant by a subsidy among customers. In transportation, a shipper is said to be paying a subsidy when its freight rate exceeds the SAC cost, and receiving a subsidy when its freight rate is less than the cost of providing service, i.e., less than the attributable cost of serving the shipper. The attributable cost is the cost that would be saved if the service to the shipper were not provided. The ICC and the Board have determined that, in the contestable world of stand-alone costs, as long as the incumbent receives revenues that cover its attributable costs, it is economically rational to connect "cross-over" traffic with the SARR. An improper cross-subsidy occurs when the revenues received by the residual incumbent are less than the attributable costs of handling this traffic. Under the Guidelines, the maximum rate that may be charged the captive shipper is the SAC. The shipper is said to be improperly subsidizing the other traffic of the incumbent railroad when the revenues its SARR receives, including revenues from cross-over traffic and the challenged rates, exceeds the SAC.

ii. BNSF's Attack On SAC Principles

In contravention of the above principles, BNSF and Dr. Ordover have changed the focus of inquiry away from the elimination of subsidies paid by the complainant shipper. They argue that the Guidelines' use of cross-over traffic is inherently biased in favor of complainant shippers by permitting the SARR to collect a subsidy from non-complainants using cross-over traffic. Indeed, they go so far as to argue that the SARR should not be allowed to include cross-over traffic at all. Inclusion of cross-over traffic is said to give the complainant shipper the opportunity to "game" the process in such a way that the incumbent is denied revenues necessary to cover its cost of capital and achieve revenue adequacy.

BNSF contends that inclusion of cross-over traffic revenues is at odds with the core principles of SAC because a hypothetical SARR that relies on revenues derived from interline traffic is not a genuine "stand-alone" railroad. It claims that a true SARR would not (and should not) benefit from the revenues generated by cross-over traffic as it would lack the necessary facilities to carry all selected traffic end-to-end. Furthermore, BNSF concludes that, in principle, the complaining shipper should be required to build all the facilities needed to carry the traffic it selects end-to-end.[17]

Dr. Ordover argues that "The use of cross-over traffic is a vehicle for strategic cross-subsidy. Further, "the Board should not accept any allocation rule that allows the shipper to construct a SARR that thrives only because it – by fiat – appropriates cross-over revenues from the residual incumbent. Indeed, if under such an allocation rule, the residual incumbent becomes even more revenue inadequate, the allocation rule effectuates a strategic cross subsidy of the issue traffic."[18]

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17 See BNSF Reply Exhibit III.A-2 at 2.
18 See BNSF Reply Exhibit III.A-2 at 4.

This attempt by BNSF to eliminate cross-over traffic is aimed at pressuring the Board to rewrite the Guidelines. This would be a step backward. Elimination of cross-over traffic is inconsistent with stand-alone costing in a free entry/free exit environment. The Guidelines provide the SARR with access to all of the productive techniques and modes of competitive behavior available to the incumbent. Therefore, the SARR must be free to interline traffic and carry out revenue sharing agreements on such traffic just as the incumbent does. Every railroad in the country interlines traffic for precisely the same reasons that a SARR would interline traffic (i.e. cost sharing and other efficiencies), and that will continue so long as there is more than a single railroad.

What BNSF calls "gaming the regulatory process" (Exhibit III.A-2, p. 11) is in fact the critical policy underlying the Guidelines and SAC analysis that the SARR can and should include all of the traffic necessary for economic efficiency. Indeed, the Guidelines specifically state that "there is no need for restrictions on traffic that may potentially be included in a stand-alone group," Guidelines at 544, and that, "The plant should be designed to minimize construction (or acquisition) and operating costs and/or maximize the carriage of profitable traffic. In selecting the route of a SAC railroad, for instance, an overriding factor may be the effort to lower costs by taking advantage of economies of density." Id. at 544. The Guidelines expressly do not require the SARR to construct necessary facilities to carry all selected traffic end-to-end. Moreover, BNSF's claim ignores a significant practical reason for cross-over traffic that allows complainants to make SAC presentations that are smaller and less complex.[19]

BNSF presents a numerical example to demonstrate its thesis that only an origin to destination full cost analysis of the traffic carried by the SARR can demonstrate that the issue traffic is

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[19] See Nevada Power at 280.

subsidizing the non-issue traffic.[20] The example presents a railroad serving two customers, where the attributable costs of serving each customer are fixed at $50, and in addition there are joint fixed costs of $50, for $150 total. The rates to each customer are respectively $90 and $60. Dr. Ordover shows that if the rate to the $90 customer is reduced, then the railroad will not cover its total costs unless it can increase the rate to the $60 customer. This is an arithmetic truism, designed to show a set of facts where the correct SAC analysis might require that a SARR's revenues cover all of the origin to destination costs of all the traffic on the SARR. But BNSF has not shown those facts to be present in this case.

The conclusion hides the fact that such a procedure would require an analysis of the cost and revenue of nearly the entire national railroad system, since each railroad has traffic interchange relationships. It is not up to the complainant to demonstrate that the SARR's cross-over traffic covers its unallocable costs on the off-SARR portion of its movements. Nothing in the Guidelines requires the complainant to provide such evidence. Following the Board's principles, Otter Tail has shown that the revenue divisions on cross-over traffic cover more than their "attributable costs" on the truncated incumbent. It is up to BNSF to demonstrate that there are additional costs that vary directly with the cross-over movements, and that the inclusion of those costs in OTP's calculation would exceed the cross-over revenue allocated to the residual BNSF.

BNSF also raises the possible threat to revenue adequacy as justification for its attack on cross-over traffic. This ignores the fact that a major purpose of using Stand-Alone costing is to identify the cost of service to the complainant shipper, not the cost of all of the incumbent's operations and facilities. The Board and the ICC have clearly established that a railroad's revenue inadequacy is

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[20] See BNSF Reply Exhibit III.A-2 at 17-23.

immaterial to a SAC determination of the reasonableness of its rates. A railroad may lack revenue adequacy for a host of reasons, none of which relate to the costs and revenues of the issue traffic. To use revenue adequacy as a criterion to determine the reasonableness of a specific rate would deny the complainant an opportunity to identify the cost and revenue of providing its service. Indeed, revenue inadequacy is not considered to be a ground for denying relief to a captive shipper whose rate exceeds stand-alone cost.

Moreover, revenue adequacy of the residual incumbent railroad has not been determined in the present case, and BNSF has not presented evidence on the issue. The residual incumbent is not an identifiable corporate entity with published financial and operating statements. Any effort to determine whether BNSF's PRB coal hauling system is revenue adequate, either in whole or truncated, would expand the dimensions of a SAC case to an unreasonable degree, and would call for the very types of calculations of revenue and cost that BNSF and Dr. Ordover would prohibit.

iii. BNSF's Retreat From A Single-Line SARR

BNSF freely concedes that the Board permits complainants to include cross-over traffic on their SARRs and it has shown no inclination to alter this fact. Therefore, BNSF retreats to the position that, if cross-over traffic is included, then the cross-over traffic should make a greater revenue contribution to the capital charges of the truncated incumbent than that afforded by both the market-based revenue division model and the Modified Mileage Proration ("MMP") methodology used by Otter Tail in Opening.

The Board has repeatedly recognized in its decisions that real-world revenue divisions are the preferred benchmark for use in estimating hypothetical divisions for cross-over traffic. Because the railroads historically have failed to produce the data necessary to make the relevant calculations,

however, the Board has applied some form of modified mileage proration methodology in all cases since McCarty Farms.[21] Even though BNSF has produced actual divisions to Otter Tail in this proceeding, it has chosen both to ignore that data and to disregard the modified mileage prorate methodology that the Board has used time and time again as an alternative to actual divisions data.

BNSF's rationale for ignoring both its own divisions and Board precedent is as follows: (1) "[T]here is no similarity between real world interline arrangements and the hypothetical arrangement between the SARR and the residual incumbent;"[22] (2) MMP (and MSP) do not sufficiently reflect the revenue divisions that would occur from free bargaining between interlining railroads; (3) it is necessary to reduce revenues from cross-over traffic on the SARR; (4) the density of traffic presumptively is lower on the residual incumbent railroad than it is on the SARR; and (5) the fixed cost of rail facilities is uniform on a per-mile basis throughout the entire country, regardless of track structure or volume of traffic. Thus, BNSF claims each ton of freight carried on the truncated incumbent must make a greater contribution than a ton of freight carried on the SARR.

BNSF instead proposes a density adjusted revenue allocation methodology ("DARA"), under which rail lines with heavy density traffic receive a reduced contribution to joint and common costs compared to rail lines with light density traffic. The cost-based DARA methodology is contrary to the long-established standard that methods of allocating cross-over revenues should approximate "market-based divisions." Otter Tail discusses the specific failings of DARA methodology in Section III-A-3.c. below. For the remainder of this section, Otter Tail addresses BNSF's critique of

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21 See e.g. Duke Energy at 22-25 (adopting the modified straight-mileage prorate method); TMPA at 31 ("Lacking information to determine BNSF's typical percentage division in various market-driven situations, TMPA divided the revenues on cross-over traffic between the CGRR and the residual BNSF based on the modified mileage block prorate (MMBP) method that has been used in prior SAC cases").

22 See BNSF Reply Evidence at III.A-61.

Otter Tail's market-based revenue division methodology, Otter Tail's mileage-based alternative to the market-based method ("MSP"), and BNSF's arguments for reducing the effect of cross-over traffic on the SARR's revenues.

The revenue sharing methodology used by Otter Tail combines a number of approaches. For coal traffic, Otter Tail has relied for the most part on a data sample of revenue divisions provided by BNSF in discovery. The methodology relies on allocations that use mileage as the basis for making revenue divisions. Otter Tail's revenue divisions provide a gain to the residual incumbent, as witness the fact that the residual incumbent's revenue share exceeds its directly variable cost ("DVC") of carrying the traffic. The DVC is an appropriate measure of the attributable cost of traffic, and revenue that exceeds attributable cost satisfies the standard set by the Board in its Non-Coal Rate Guidelines decision of 1996.

It is not irrational to carry traffic at rates that exceed DVC. Indeed, the railroad will carry traffic at DVC, if the line is lightly used and the railroad wishes to keep it in operation in the expectation that it will be more valuable in the future. It would also be appropriate to charge a rate at the DVC level in the case of traffic that is ephemeral in nature, and regarded by traffic managers as a target of opportunity. As another example, a railroad may be willing to accept a rate division that covers only DVC on the originating or terminating portion of a movement shared with a bridge carrier. The minimum rate division that a bridge carrier need offer to its connecting partners will reflect the combined costs and revenues to the originating and terminating carriers. For example suppose the SARR serves as a bridge carrier for a movement that is originated and terminated by the truncated incumbent. The truncated incumbent is not going to decline a terminating movement on a lightly traveled branch line if delivery on the branch facilitates a profitable movement at the origin.

In contrast, BNSF regards URCS variable cost as the attributable cost (BNSF Reply at III A-97) and it uses URCS variable cost in combination with density as allocators in its evidence on revenue divisions. BNSF appears to assert that URCS variable cost is the minimum level at which a railroad will carry traffic, for it is the revenue level that BNSF believes must be covered before the freight movement can be said to make a contribution to unallocable common costs. URCS variable cost is a construct that exceeds DVC, because it includes among other items an allocation of capital service charges variable with output charged in at the current cost of capital. However, in a number of coal movements in the divisions data produced by BNSF, BNSF's revenue share is less than its URCS variable cost, confirming that the railroad does carry traffic at rates less than this purportedly minimum acceptable rate.

A mileage-based methodology for calculating rate divisions between on-line and off-line traffic, first adopted in Nevada Power II as a straight-mileage prorate method, then modified at BN's urging in the form of MMP in McCarty Farms, is an accepted means to estimate the market-based rate division rules customarily used by railroads when interchange traffic was more common in U.S. railroading than it is today. The decline of the practice is the result of mergers that have reduced the number of railroads and the number of interchanges. BNSF objects to Otter Tail's revenue division methodology on the following three grounds.

a. The revenues from cross-over traffic are arbitrarily allocated among the two railroads, the SARR and the residual incumbent on the basis of costs that have been gerrymandered by the complaining shipper for its maximum advantage. (BNSF Reply Ex. III.A-2, p. 15)

b. Real world negotiations for divisions succeed only if both carriers are better off than they would have been without an agreement. The only way this can produce a mutually beneficial outcome would be if the incumbent were able to retain its contribution on the through movement and the more efficient SARR were willing to accept a division equal

to the incumbent's avoided costs of handling the cross-over movement over the SARR portions of the haul. (Id. at 26)

c. The revenue divisions should take account of the consideration that the denser route has more sources of contribution per ton mile than the less dense route and may be able to make a sufficient contribution to the recovery of costs with a lower share of the cross-over traffic net revenues as compared to the sparsely traversed route. Thus all else being equal, the more traffic there is moving over a given line segment, the lower the amount of cost that needs to be recovered on average from each ton-mile in order to recover the total costs of the segment. (Id. at 30-31)

The first objection is that the costs used to make the divisions are arbitrarily split at the discretion of the complainant, who designs the SARR. But this is an objection to the principle of using a hypothetical firm to measure the costs of providing service under conditions of contestability. What is called "gerrymandering" is a pejorative description of contestability.

The second objection is based on the standard that the SARR cannot take traffic away from the incumbent unless the incumbent is unharmed. But no one is taking anything from the incumbent. The SARR is a hypothetical replacement for the incumbent. The purpose of the exercise is to show that the SARR can carry the traffic at lower cost, and that the incumbent is in effect using revenue from the complainant to cover costs that do not benefit the complainant.

Here BNSF makes two related claims that the ICC and the Board have never accepted: First, that the incumbent should be permitted to keep its contribution to unallocable costs on the through movement, despite the fact that it would no longer be operating a through movement; and second, that the SARR be restricted to a revenue level equal to the avoidable cost of the incumbent on the portion of the movement that the SARR would take over. Both of these claims are inconsistent with contestability, an environment that would force the incumbent to adjust to the elimination of any subsidies it collects from the complainant.

This is a not so subtle attempt to re-introduce public utility pricing through a guaranteed rate of return to an incumbent monopolist. It is part of a railroad argument that portrays the SARR as a competitor for the incumbent, when in fact the Board and the ICC have explicitly rejected that notion.[23] The SARR does not compete with the incumbent, but rather replaces portions of its service while enjoying all the economic advantages that the incumbent possesses. Allowing the SARR to carry cross-over traffic does not give it an unfair advantage over the incumbent, but makes the same market and operational efficiencies available that are possessed by the incumbent.[24]

BNSF's comments divert attention from a major assumption underlying the SAC test, namely contestability. The SARR should have the same ability to attract and carry traffic as the incumbent, including the option to carry traffic for a portion of the entire movement. The SARR should also have the same bargaining options that the incumbent enjoys when it engages in rate division agreements with other carriers. This means that the SARR's rate divisions should reflect the outcome of the same bargaining process that presently occurs between independent railroads. In the case of the divisions between the SARR and the incumbent, the outcome will be Pareto superior in the sense that both parties must be better off carrying the cross-over traffic than not carrying it at all. And that is guaranteed by the condition set by the Board in its 1996 Non-Coal Rate Guidelines Decision. BNSF mistakenly claims that the application of market divisions to the SARR's traffic is Pareto inferior because the incumbent cannot refuse to carry the traffic. Refusal to carry the traffic

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23 See Nevada Power II at 267.

24 In its Duke Energy decision, (p. 18, fn.28) the Board cited the ICC's treatment of this issue in Nevada Power II, where the Commission rejected the "efficient component pricing" procedure that would limit a SARR's revenue from cross-over traffic to the existing carrier's incremental cost of providing a service on the lines the SARR would hypothetically replace as "inconsistent with the nature and purpose of SAC constraint"

is irrational if the rate division covers the traffic's avoidable cost. That is the sense of the 1996 Non-Coal Rate Guidelines decision.

BNSF's third objection to mileage based revenue divisions alleges that they do not satisfy the residual incumbent's need for revenue to cover the costs of the lines connecting with the SARR. By implication, the terminating traffic travels on low density lines. This ignores the issue of BNSF overcapacity on portions of its PRB coal delivery system. One of the reasons that the connecting lines of the residual incumbent may be lightly traveled is the fact that BNSF operates three East-West routes coming out of the North side of the PRB.

BNSF's statements also ignore the fact that the actual divisions data provided by BNSF in discovery do not appear to substantiate its claim that density is a major factor in determining the willingness of a carrier to add cross-over traffic. If indeed railroads found it necessary to obtain revenues that compensated for the higher unit cost of operating low density lines, then one would expect to observe that railroads obtain a higher revenue share for movements on their low density lines.[25]

BNSF also claim that the use of cross-over traffic reflects the SARR's refusal to build out, safe in the knowledge that it can use the regulatory process to force the residual incumbent to provide the service at a lower cost that subsidizes the SARR. (BNSF Reply Ex. III.A-2, p. 32). In a contestable market the firm undertaking the make-or-buy decision has no need to know the avoidable cost of its supplier. What it needs to know is the bid the supplier offers to get the entrant's business. We don't

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[25] See Otter Tail Rebuttal Exhibit III-A-8, part IV.B. Also note that in Duke Energy the Board rejected railroad arguments for density adjusted revenue divisions on cross-over traffic. The decision was based on the absence of evidence from the railroad that the unit costs of light density lines were higher than heavy density lines.

know what BNSF would charge to connect and terminate traffic that originates on the SARR, but that price may be inferred from the attributable cost of the service.

In addition to disparaging the use of mileage based methodologies to allocate cross-over revenues, BNSF violates the Coal Rate Guidelines and basic SAC principles by attempting to reduce the efficiency of stand-alone railroads by suggesting a limit be placed on the extent cross-over traffic may be included in a SAC presentation through the use of arbitrary traffic grouping rules. BNSF's traffic grouping rules could include requiring the shipper to construct all the facilities required to handle cross-over traffic end-to-end, capping cross-over revenue to an amount of traffic that is no greater than the net revenue in excess of costs that the complainant would show by constructing all the facilities needed to handle its traffic group, or limiting the amount of traffic that a proponent could include in a SAC presentation.

BNSF's rules are nothing but arbitrary devices that seek to limit the ability of a shipper to present a viable SAC presentation, and permanently tilt the playing field in favor of defendant railroads. There is nothing in the Coal Rate Guidelines, or subsequent decisions, that requires the SARR to construct all of the facilities necessary to handle the non-issue traffic, or limit itself to the revenue contribution that would occur from construction and utilization of such facilities. BNSF's rules are just devices to limit the volume of cross-over traffic on the SARR, without any justification for doing so other than to hobble the SARR and benefit the residual incumbent. Limiting the amount of cross-over traffic would place a limit on the ability of the SARR to compete, and on the profitability of entering the market in the first place. Moreover, if BNSF believes that the residual incumbent is forced to bear significant costs associated with facilities dedicated to the cross-over

traffic, such evidence should have been presented in its Reply, so that it could be tested by Otter Tail on rebuttal.

In summary, although, for the first time in a rate case, BNSF has provided actual interline revenue divisions data, which Otter Tail has used to calculate typical revenue splits for various commodities, BNSF inexplicably has taken the position that divisions realized by railroads for the movement of interline traffic in the real world are in no way reflective of divisions that could be expected by a hypothetical stand-alone railroad. Furthermore, despite the Board's repeated acceptance of mileage-based divisions as a reasonable surrogate for market-based divisions, BNSF argues that MMP is an inaccurate representation of market bargaining.[26] If BNSF could show, using its actual revenue data, that its negotiated revenue sharing arrangements are less favorable than the MMP method, it might have a more convincing argument than one that is dependent on the claim that it is being exploited by the Board's SAC methodology.[27] The fact that BNSF has chosen to run from its own revenue division data in this case is telling. Otter Tail analyzed the actual divisions data produced by BNSF to ascertain the relationship between revenue divisions and length of haul in the market-place. While BNSF is critical of the analyses conducted by Otter Tail, it makes no effort to conduct its own analysis using the data.

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26 See BNSF Reply at III-A-61 to III.A-62.

27 BNSF also includes in its Reply Evidence at III.A-13 to III.A-19 a so-called "simple example" in which it attempts to demonstrate that the MMP unfairly "rebalances" revenues between a SARR and the residual incumbent because MMP does not consider the costs of the residual incumbent. Notwithstanding the fact that the example is incorrect in stating that the revenues from the cross-over traffic must recover the SAC of the residual incumbent (the revenues must only make a contribution to the incumbent's unattributable costs since the incumbent's costs are sunk), BNSF is also incorrect that there is no formula or algorithm that can calculate the ideal allocation of cross-over traffic revenues. BNSF continuously establishes revenue divisions with other railroads, so it must have information on allocating railroad revenues.

b. Traffic Grouping Principles – Inclusion of Southern PRB Traffic

BNSF asserts at pages III.A-20 to III.A-24 of its Reply Evidence that 54[28] million tons of unit coal train traffic that originates at mines south of Cordero and exits the OTRR at Converse, Wyoming must be excluded from the OTRR traffic group because the traffic "never move[s] over any segment of track that constitutes the issue traffic route of movement."[29] BNSF further states that this traffic, "does not share any facilities with the issue traffic, which moves north of Cordero mine."[30] BNSF cites the Board's recent decision in PPL II as justification for its exclusion of the southern PRB traffic. BNSF claims the southern PRB traffic moving south via Converse does not share facilities with the issue traffic and is thus cross-subsidizing the OTRR traffic group.[31] BNSF's reliance on the PPL cross-subsidy test in this case is clearly misplaced and as such it is irrelevant to the issue at hand. The 54 million tons of coal BNSF seeks to exclude from Otter Tail's base case, and the 85 million tons BNSF seeks to exclude from Otter Tail's alternative case, use the same facilities as the issue traffic, as explained in detail below.

BNSF's assertion that southern PRB traffic exiting the SARR at converse does not share facilities with the issue traffic and should thus be excluded from the OTRR traffic group is unambiguously rebutted by the Board's decision in Duke/CSX. Specifically, where CSX had sought to exclude a steel movement for the same reason BNSF seeks to exclude the traffic in question here, the Board stated that, "the segment would not serve the steel traffic alone, but would also be used for coal traffic that clearly would share facilities in common with the Duke traffic that is at issue in

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28 BNSF seeks to exclude an additional 30.75 of the 31.7million tons of coal Otter Tail adds in its Supplemental Openig Evidence to its alternative SARR traffic group. See BNSF Supplemental Reply at III.A-6.

29 See BNSF Reply at III.A-20.

30 See BNSF Reply at III.A-21, footnote omitted.

31 See BNSF Reply at III.A-20 through III.A-21.

this case."[32] BNSF's contention that the Board included the steel traffic in Duke/CSX because the steel plant's inbound traffic shared facilities with the issue traffic conveniently fails to present the relevant language from Duke/CSX included above. Furthermore, BNSF's position that, because more traffic is at issue in this case than was at issue in the Duke/CSX case, different rules should apply, is self-serving and would require the Board to apply its decisions inconsistently.

In addition, BNSF's characterization of the southern PRB traffic as "'second order cross-over traffic'or 'cross-over on cross-over traffic'"[33] is a misnomer. BNSF makes the statement that the non-issue traffic that originates in the southern PRB and travels north "is itself cross-over traffic."[34] This statement could only be true if the BNSF originated the traffic at the southern mines and interchanged the traffic to OTRR on the Orin line. This is simply not the case. OTRR originates the traffic in the southern PRB and moves the traffic north out of the basin. Therefore the traffic is not cross-over traffic in the basin. The BNSF's statement is clearly in error.

i. Southern PRB Coal Traffic
Shares Assets with the Issue Traffic

BNSF's statement that the traffic in question does not share facilities with the issue traffic is simply wrong. BNSF's claim that the traffic does not move over any segment of the issue traffic route of movement is historically inaccurate. Otter Tail shipped 127,000; 136,000 and 56,000 tons of coal from Black Thunder Mine to Big Stone in 2000, 2001 and 2003 respectively. Furthermore, Otter Tail has shipped PRB coal originated at Rochelle mine to Big Stone.[35] Considering Big Stone's historical trend of shipping coal from southern PRB mines, and given the fact that the tariff

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32 See Duke/CSX at 23.
33 See BNSF Supplemental Reply at III.A-9.
34 See BNSF Supplemental Reply at III.A-9.
35 See Otter Tail Rebuttal electronic workpaper "FERC PRB Big Stone.xls."

that currently governs the movement of coal from PRB mines to Big Stone includes these southern PRB origins,[36] it is clear that the issue traffic shares the facilities with all coal traffic originating at all PRB mines. Furthermore, both Otter Tail and BNSF have included, in their respective traffic groups, significant volumes of coal originated at southern PRB mines that move north through the PRB to Donkey Creek and then west over the OTRR lines to Moran Junction, Montana and beyond. The track over which the southbound traffic BNSF seeks to exclude moves is exactly the same track that BNSF uses to move other traffic from southern PRB mines in the northerly direction. Both Otter Tail's and BNSF's SARRs require the construction of the facilities between Cordero and Antelope. To deny the SARR the opportunity to move revenue traffic over these facilities based on the direction of traffic flow is flatly illogical. The SARR should benefit from the same scale economy efficiencies that enabled the BNSF to recover the cost of constructing these facilities in the real world.

ii. Inclusion of Southern PRB Traffic Supports the Purposes of the Stand-Alone Cost Test

In developing its arguments for excluding Southern PRB traffic from the OTRR traffic group, BNSF claims that the inclusion of Southern PRB traffic would be contrary to the purposes and objectives of the SAC test.[37] However, examination of the language contained in Guidelines makes clear the fact that exclusions of the sort proposed by BNSF stand in direct contradiction to the *stated purpose* of the SAC test. When devising the stand-alone cost test, the purpose of the test is to determine the least-cost, most efficient system at which an efficient competitor could provide alternative service to a captive shipper:

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36 See Otter Tail Opening at III-A-3.
37 See BNSF Reply at III.A-21.

> The purpose of a SAC analysis is to determine the *least* cost at which an efficient competitor could provide the service, because by so doing we are simulating the competitive price for the market.[38]

An essential component of determining the least cost alternative is the ability for the shipper to include different traffic in the shipper's stand-alone presentation:

> The ability to group traffic of different shippers is essential to theory of contestability. Without grouping, SAC would not be a very useful test, since the captive shipper would be deprived of the benefits of any inherent production economies.[39]

The STB has reiterated this position in subsequent STB rulings, including Nevada Power and WTU, and TMPA.[40]

(a) Excluding Traffic Would Weaken the Stand-Alone Test

BNSF wrongly contends that including the Southern PRB traffic in the OTRR's traffic group would distort the objective of the SAC test. Excluding the traffic, or any other traffic that could be reasonably assumed to move over the stand-alone railroad, would inherently weaken the stand-alone test as the STB and ICC have repeatedly ruled.

If Southern PRB traffic were excluded from the OTRR's traffic group, Otter Tail would be irreparably harmed by being denied the opportunity to build the least cost, most efficient system available. This would undermine the whole purpose of the SAC analysis. As explained above, there is no logical basis for excluding the traffic from the OTRR's traffic group. Excluding the traffic

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38 See Guidelines at 542.
39 Id. at 544.
40 See Nevada Power at 263, WTU at 657 and TMPA at 16.

from the OTRR traffic group would mean the OTRR's physical infrastructure would not be optimally utilized, nor would its unattributable costs be efficiently shared. Removing the southern PRB traffic deprives the OTRR's shippers, including Otter Tail, of the benefit of the OTRR's inherent production economies of scope and density, and therefore denies the simulation of a least cost competitor and a simulated market rate.

c. Traffic Grouping Principles - Inclusion Of Other OTRR Coal Traffic

In addition to excluding Southern PRB traffic from the OTRR traffic group, BNSF also excluded traffic from several other movements that originate on the OTRR. These include (1) movements that BNSF alleges do not meet Otter Tail's selection criteria, (2) Northern States Power Company d/b/a Xcel Energy's Riverside and Highbridge Plants ("Riverside" and "Highbridge"), and (3) plants that receive coal that is delivered by BNSF to Superior, Wisconsin and is then trans-loaded to vessel for final delivery. Otter Tail disagrees that any of this traffic should be eliminated from the OTRR traffic group.

i. All Coal Traffic Meets the Selection Criteria

BNSF contends that Otter Tail improperly included traffic that did not meet Otter Tail's own traffic selection criteria. In its base case, Otter Tail limits the coal movements included in its traffic group based on the fact that some available coal train movements were not similar enough to interline coal movements for which BNSF provided actual revenue divisions in discovery.[41] Because of the dissimilarity of the movements vis-a-vis interline movements for which BNSF provided divisions data, Otter Tail was not able to apply the market division formulae derived from BNSF's

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[41] Specifically, Otter Tail did not include any movements that did not move at least 1.1% of the total movement miles on the OTRR. See Otter Tail Opening at III-A-18, footnote 24.

divisions data to the through revenue generated by the movements in order to calculate accurate SARR revenue divisions. Therefore, the movements were excluded.[42]

In calculating market divisions for interline coal movements, Otter Tail evaluated the universe of BNSF interline coal movements included in BNSF's revenue traffic data provided in discovery. For coal traffic originated in the PRB, Otter Tail determined the percent of haul for BNSF and its connecting carrier for each movement. The divisions data BNSF provided included divisions for a movement of PRB coal (for which BNSF had negotiated a revenue division with a connecting carrier), and for which BNSF moved the coal 98.9 percent of the total haul and the connecting carrier moved the traffic the remainder (1.1 percent) of the movement. For this reason, market divisions determined from this pool of data were applied to PRB coal movements for which the OTRR, as connecting carrier to BNSF, handles the traffic for at least 1.1 percent of the movement miles. Because Otter Tail could not apply the results of the division analysis to coal traffic moving less than 1.1 percent of movement miles on OTRR, traffic that fell below that level was excluded from the Opening traffic group.[43]

As will be explained below, BNSF's claim that some coal movements must be excluded from the Otter Tail traffic group because the traffic did not meet the 1.1 percent mileage floor requirement Otter Tail used in its traffic selection procedure is baseless. BNSF seeks to exclude the traffic in question because Otter Tail did not apply the 1.1 percent mileage floor requirement consistently in its traffic selection process. BNSF's critique is two-fold. First, BNSF asserts that Otter Tail

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42 As noted above, Otter Tail's alternative SARR uses the Board's MSP methodology to allocate revenues between the SARR and the residual BNSF. As such, there is no need to exclude the 31.7 million tons of PRB coal that do not meet the requirements necessary to apply the market-based division methodology.

43 The procedure Otter Tail used to develop market divisions data was detailed in Opening Exhibit III-A-6.

included interline PRB coal movements for which the OTRR moved the traffic less than 1.1 percent of the haul, according to Otter Tail's mileage calculation. Second, BNSF claims that Otter Tail's mileage calculation is flawed and results in the overstatement of the SARR percent of haul, and thus, improperly includes additional movements. BNSF is wrong on both counts.

First, BNSF seeks to exclude 4.3 million tons of coal from the OTRR traffic group because the traffic moves less than 1.1 percent of the total movement miles on OTRR lines based on Otter Tail's calculation.[44] These movements appear to fall below Otter Tail's mileage floor as a result of an error in the Opening miles calculation included in Otter Tail's traffic and revenue spreadsheet. Specifically, Otter Tail inadvertently failed to include the miles from Donkey Creek Junction to East Donkey Creek Yard in its SARR miles calculation for traffic exiting the OTRR at East Donkey Creek Yard.[45] Similarly, Otter Tail failed to include the miles from Converse Junction to Converse Yard in its SARR mileage calculation for traffic exiting the SARR at Converse Yard.[46] This error was discovered while making changes to the SARR mileage calculation in accordance with errors pointed out by BNSF in Reply.[47] As Otter Tail has constructed and operates over these facilities, it is clearly appropriate to correct this oversight in Rebuttal. Correction of this error eliminates the apparent misapplication of Otter Tail's mileage criteria alleged by BNSF.[48]

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44 See BNSF Reply at III.A-27, Table III.A-2.

45 BNSF's statement that "OTP increased by four miles the SARR mileages for shipments from Orin Line mines to Donkey Creek by including the distance between West Donkey Creek and East Donkey Creek," at p. III.A-32 n. 61 of its supplemental Reply is in error. Otter Tail included miles between Donkey Creek Junction and East Donkey Creek.

46 See Otter Tail Opening workpaper file "Otter Tail Railroad Coal Traffic Forecast.xls" at worksheet "SAC Miles Summary" and corrected Otter Tail Rebuttal workpaper file "Otter Tail Railroad Coal Traffic Forecast rebuttal.xls" at worksheet "SAC Miles Summary".

47 See BNSF Reply at III.B-1 through III.B-3.

48 See Otter Tail Rebuttal electronic workpaper "Otter Tail Railroad Coal Traffic Forecast rebuttal.xls" at worksheet "SAC Mile Summary" and "SAC Miles."

Second, BNSF seeks to exclude 10.1 million additional tons of coal because it claims Otter Tail's weighted average movement mileage calculation, which is based on train-miles, understates total movement miles.[49] BNSF goes on to state that weighting should be based on ton-miles. BNSF's method of ton-mile weighting would result in a larger share of movement miles for the residual incumbent BNSF (and a larger share of revenues). BNSF alleges that Otter Tail intentionally understated movement miles by relying on train-miles rather than ton-miles as the preferred metric for weighting movement miles.[50] However, Otter Tail's divisions methodology is based on the relationship between revenue divisions and train-miles, because much of the divisions data provided by BNSF did not include data related to volume shipped. Therefore, it would be inappropriate to apply the results of a train-mile based revenue division formula to a ton-mile based mileage division between railroads.

To confuse the issue further BNSF injects a discussion of bad-order cars (what BNSF calls "outlier data")[51] into its discourse on the merits of using ton-miles as opposed to train-miles as a weight in the movement miles calculation. BNSF asserts that inclusion of these bad-order cars in the mileage calculation distorts the result. However, BNSF includes the bad-order cars in its own ton-mile-weighted mileage calculation.

BNSF further asserts that Otter Tail should have relied on the car cycle mile field in the traffic database rather than the train-mile fields included in the same database.[52] However, for the same reason stated above (i.e. the revenue divisions for coal traffic were calculated using train-miles), it

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49 See BNSF Reply at III.A-28.

50 BNSF further asserts, incorrectly, that Otter Tail's movement miles are determined using "a simple average train mile calculation." (See BNSF Reply at III.A-29) Otter Tail's train-mile calculation is by definition a weighted average. It is weighted on train-miles.

51 See BNSF Reply at III.A-28.

52 See BNSF Reply at III.A-30.

would be inappropriate to use car-miles to calculate average movement miles and apply a train-mile based revenue division formula.

BNSF also wrongly excludes traffic that it alleges does not reflect Otter Tail's 1.1% mileage floor from BNSF's own restatement of cross-over revenue allocation using DARA. This is manifestly inappropriate because BNSF did not apply the market-division analysis in its calculation of revenue divisions for coal. Rather, BNSF used the cost-based DARA analysis. Nowhere in BNSF's Reply narrative does it claim that there should be any restrictions on the application of DARA based on minimum length of haul. If BNSF excludes traffic based on a limitation related to the application of the market-based division methodology then it must apply that methodology to determine the division of revenues between carriers. BNSF cannot have it both ways. If BNSF applies DARA it must include all unit coal train traffic included in Otter Tail's traffic group. The Board acknowledged this very fact in its November 21, 2003 decision, which allowed Otter Tail to supplement the record to add back into its traffic group all of the traffic excluded by the 1.1% mileage floor for the purposes of applying the Board's newly adopted MSP revenue allocation procedure. In fact, in its Supplemental Reply evidence, BNSF acknowledges that excluding traffic from its traffic group based on the 1.1% mileage floor is inappropriate when using a division methodology other than Otter Tail's market based divisions. (See BNSF Supplemental Reply at pp. 14-15).

As discussed above, Otter Tail's 1.1 percent of haul mileage floor for coal movements was necessitated by the fact that BNSF's interline revenue divisions data was not applicable to movements that did not meet the criteria. On Opening, Otter Tail excluded 31.7 million tons of coal from its traffic group based on Otter Tail's application of real world market divisions data to

hypothetical SARR cross-over coal traffic.[53] If the Board chose to employ any methodology other than Otter Tail's market-based divisions for the allocation of revenues between the SARR and residual incumbent for coal traffic, it would be appropriate to add this traffic to the OTRR traffic group.

ii. Highbridge and Riverside Volumes

BNSF asserts that Northern States Power Company d/b/a/ Xcel Energy's Riverside and Highbridge plants will substantially reduce the extent to which they burn Powder River Basin Coal in 2005 and 2006, and will stop burning coal altogether in 2007.[54] BNSF's conclusions are based on certain statements appearing in Xcel Energy's 2002 Resource Plan (Minnesota) filed on December 2, 2002 with the Minnesota Public Utilities Commission ("MPUC")[55] and approved on March 8, 2004."[56] This plan covers the period 2003-2017 and identifies a large number of issues and risks that will significantly affect the reliability and economy of Northern States Power Company d/b/a/ Xcel Energy's customer's electrical energy supply. The plan also describes a five-year action plan for trying to accomplish the various plan objectives. In the Resource Plan, Xcel Energy noted that one element of the plan is a proposal to convert the Highbridge and Riverside plants to new combined-cycle, natural gas fueled plants. The Resource Plan states that these conversions, if implemented, would occur at Highbridge in May, 2008, and at Riverside in May 2009.[57]

BNSF's statement that the conversions are intended to occur in 2005 and 2006 is a misreading of the Resource Plan. But in any event, it is also incorrect to conclude from the Resource Plan that

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53 See Otter Tail Opening electronic workpaper "Otter Tail Railroad Coal Traffic Forecast.xls" at sheet "2002 Non-SAC Moves."
54 See BNSF Reply at III.A-33.
55 A complete copy of the Resource Plan is included in Otter Tail's Rebuttal Workpaper Vol. 1, pp. 5276-5513.
56 See BNSF Supplemental Reply electronic workpaper "Order 3-8-04.pdf."
57 See Otter Tail Rebuttal Workpaper Vol. III, pp. 5339 to 5340.

the conversions will occur on the proposed timeline, or that they will be implemented at all. One of the key prerequisites for the project to move forward will be the ability of Xcel to recover its investment related to the proposal from its customer base. The inability to recover investment costs would provide a significant disincentive for going forward with the proposal and a corresponding incentive to continue burning PRB coal at the plants. The investment recovery issue has not yet been decided, and would require the approval of a rate rider,[58] a process which could further delay the start date of the process or modify the conversion proposal.

The proposed conversion could also be affected by unforeseen economic and operational developments. Xcel Energy recognized this uncertainty in the Resource Plan by assuming the Highbridge and Riverside would continue to burn PRB coal at least through the entire five-year initial planning period (2002-2007), while the completed conversion of other coal units to natural gas was reflected.[59]

In short, it was incorrect for BNSF to conclude from the statements in the Resource Plan concerning the proposal to convert Highbridge and Riverside to natural gas that this particular aspect of the entire plan is a certainty at this stage of the process. As such, Otter Tail retains the Riverside and Highbridge coal tonnage in its OTRR traffic forecast.

iii. Superior Dock Volumes

BNSF asserts that Otter Tail has overstated coal volumes to Superior Dock in Wisconsin. Specifically, BNSF claims Otter Tail has made two errors in its volume calculation for coal destined to Superior: 1) Otter Tail's calculation of Superior Dock capacity is overstated; and 2) Otter Tail's

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58 See BNSF Supplemental Reply electronic workapper "Order 3-8-04.pdf."

59 See Otter Tail Rebuttal Workpaper Vol. III, p. 5337 showing page 50 of Xcel's Resource Plan.

Superior coal volume exceeds Otter Tail's own calculation of Superior Dock capacity.[60] BNSF states that the combined impact of the two changes it implemented, as discussed above, on OTRR coal volume is an annual reduction of tons a year after 2012.[61] BNSF's criticisms are addressed below.

In Opening, Otter Tail capped the collective annual coal volume for competitive OTRR shippers receiving coal at Superior at million tons.[62] The million ton annual volume figure was calculated by applying the average percentage of total Superior coal deliveries moved by BNSF in 2001-2002 to the current Superior Dock annual capacity of million tons. Otter Tail's calculation of BNSF's share of total 2001-2002 coal deliveries was based on a comparison of BNSF traffic tape volumes and Superior Dock shipments as published by the Lake Carriers Association. BNSF accepts Otter Tail's use of BNSF traffic data but rejects Otter Tail's use of Lake Carriers Association data. Rather, BNSF calculates the percent of superior coal moved by BNSF in 2001-2002 by comparing the BNSF traffic tape volume and Midwest Energy's coal receipts data.[63] This change results in a calculated annual capacity for BNSF originated coal to Superior of million tons. Otter Tail has no reason to believe the annual volume figures cited by BNSF are any more reliable than the Lake Carriers Association figures it relied on in Opening. Otter Tail maintains that its calculation of Superior Dock capacity for competitive shippers is accurate.

BNSF also is critical of Otter Tail's application of its calculated Superior Dock annual capacity. BNSF claims that Otter Tail failed to count the volume of one of OTRR's Superior coal shippers,

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60 See BNSF Reply at III.A-35.
61 See BNSF Reply at III.A-39.
62 See Otter Tail Opening electronic workpaper "Otter Tail Railroad Coal Traffic Forecast.xls" at worksheet "Superior Analysis."
63 See BNSF Reply at III.A-37 to III.A-38.

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. against the calculated annual capacity.[64] The fact of the matter is that Otter Tail intentionally omitted coal volume from the comparison between Superior deliveries and the competitive capacity as calculated in Opening. As did not take coal at Superior in 2001 or 2002, the percentage of total Superior coal receipts shipped by BNSF for the 2001 to 2002 time period was exclusive of that traffic. Because the movement commences in 2003 it is not subject to the competitive cap of million tons that was calculated based on 2001-2002 Superior Coal. Furthermore, uperior coal is originated at Spring Creek mine in Montana, and as such it is captive to BNSF. As depicted in BNSF's Reply Table III.A-7, OTRR annual deliveries to Superior for both captive and competitive origins do not exceed the current million ton annual capacity of the facility.

It is important to note that the current million ton annual capacity at Superior Dock will likely be increased in the future, based on the history of the facility and the trend of steadily increasing volume of Lake utility coal. It only stands to reason that Midwest Energy Resources Company ("MERC"), as a rational entrepreneur, will expand capacity as additional traffic becomes available. MERC's website verifies this supposition as fact. It states, "The terminal facility has sufficient capacity and design flexibility to accommodate the coal transshipment needs of additional electric utilities and industrial firms throughout the Great Lakes region."[65] In fact, as depicted in Exhibit III-A-9, that is exactly what has happened at Superior over the last 25 years. Every time coal receipts have approached or exceeded dock capacity in a year, the facility has expanded to accommodate the growth within a three year span. In 1990, 1998 and 1999, Superior Dock received

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64 See BNSF Reply at III.A-36 to III.A-37.

65 See MERC website at http://www.midwestenergy.com/about/ and Otter Tail Rebuttal Workpaper Vol. III, pp. 5522 - 5523.

coal volumes in excess of the facility's reported capacity.[66] For all the reasons stated above, OTRR retains all of its Superior coal volume from Opening.

In its Supplemental Reply, BNSF makes the statement that, "updated public information from Superior Dock indicates that the *actual* tonnage levels delivered to the dock in 2003 were approximately 1 million tons less than 2002 levels, indicating that Otter Tail's *forecasted* volume increase in 2003, equal to tons, overstates the *actual* volumes delivered to the dock by approximately tons (and {$ } in SAC revenues)."[67] This statement is wrought with misinformation. First, what BNSF characterizes as Otter Tail's forecast of 2003 Superior volume is actually BNSF's own 2003 O/D coal forecast. In fact, Otter Tail relied exclusively on BNSF's internal 2003 O/D coal forecast for purposes of forecasting 2003 OTRR traffic levels, and BNSF accepts its use. Second, BNSF is not entitled to selectively apply its internal 2003 O/D coal forecast, applying forecast volumes only to movements for which the forecast understated actual receipts while applying actual receipts to movements for which the forecast overstated actual receipts. Otter Tail's forecast of Superior volume remains the best evidence of record. Accordingly, Otter Tail continues to use its original forecast of Superior volume.

d. Traffic Grouping Principles - Inclusion Of Other OTRR Non-Coal Traffic

As indicated in Otter Tail's Opening Evidence, Otter Tail designed the OTRR's traffic group to consist of 1) the issue traffic, 2) additional coal traffic, and 3) traffic that moves in overhead service over the OTRR system. In addition to excluding coal traffic from the OTRR traffic group, BNSF also seeks to exclude traffic from several other OTRR commodity groups. They include

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66 See Otter Tail Rebuttal Exhibit III-A-11, page 2 of 2.
67 See BNSF Supplemental Reply at III.A-18, emphasis in original, footnote omitted.

movements that BNSF alleges either 1) do not meet the required service standards for the traffic, 2) do not meet the Guideline requirements or 3) do not meet Otter Tail's selection criteria. Otter Tail disagrees that most of this traffic should be eliminated from the OTRR.

i. Priority Intermodal Trains

BNSF asserts at pages III.A-41 to III.A-49 of its Reply that the highest priority intermodal trains ("Z Trains") traveling bi-directionally between Fargo, ND and Snowden, MT must be excluded from the OTRR traffic group.[68] BNSF excludes this traffic because the OTRR's "rerouting produces an unacceptable re-routed cycle times"compared to the transit times currently achieved by the BNSF.[69] BNSF claims that the Z train traffic is highly time sensitive and operates on regular schedules.[70] Furthermore, BNSF asserts that any increase in transit time would result in BNSF (or OTRR) losing the business to a competitor like the UP or trucks.[71] In order to minimize the contended issues before the Board in Rebuttal, Otter Tail accepts BNSF's criticism and has excluded the Z-train traffic from its traffic group.

ii. Internally Re-routed Non-Issue General Freight Traffic

In its Supplemental Reply evidence, BNSF seeks to exclude 13.7 million tons of general freight traffic from the OTRR traffic group, in addition to the general freight traffic it sought to exclude in its original Reply evidence. BNSF alleges that its position is supported by recent Board decisions in Duke/NS, Duke/CSX and PPL II. However, BNSF's logic is based on a misinterpretation of the Board's decisions in the referenced cases.

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68 BNSF only makes these claims about Z trains moving between Fargo and Snowden. The OTRR also has Z Train traffic moving between Fargo and Moran Junction, MT, which the BNSF has accepted.

69 See BNSF Reply at III.A-42.

70 See BNSF Reply at III.A-45.

71 See BNSF Reply at III.A-46.

Specifically, BNSF claims that, "[a] shipper should not seek to have its rate reduced by shifting any part of the costs of the lines or facilities that it needs onto traffic that does not use those lines or facilities."[72] BNSF's justification for its exclusion of internally re-routed non-coal traffic moving over the OTRR between Snowden and Fargo is based on its statement that the traffic "would share only minimal facilities (only 23 miles) with the issue traffic on the SARR if it were transported along its customary route."[73] This statement is factually incorrect and misleading. In addition to traversing the OTRR line segment between Fargo and Surry Jct., the traffic in question also moves via Snowden in its real-world routing. Thus, it shares facilities with the OTRR at both points of interchange between OTRR and the residual BNSF. This fact is precisely what makes this traffic internally re-routed non-issue traffic, which is expressly permitted in Duke/CSX.[74]

BNSF further states that the internally re-routed traffic should be excluded because, "where rerouting results in a longer haul – as it does with the majority of this non-coal traffic – the 'rebuttable presumption' is that the longer route is less efficient than the real-world route."[75] BNSF makes much of the fact that the Snowden to Fargo segment over the OTRR is 101.1 miles longer than BNSF's Snowden to Fargo segment traversed by the cross-over general freight in the real world. While this is true, the additional miles increase the length of haul on BNSF by an average of only ó for the re-routed traffic.[76] For the traffic that is interlined between BNSF and other railroads, the increase in movement miles is even less substantial. BNSF's claim that the increase in miles

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72 See BNSF Supplemental Reply at IIII.A-25, citing PPL II at 7.

73 See BNSF Supplemental Reply at III.A-20.

74 See Duke/CSX at 16, Exhibit III-A-10 shows the differences between impermissibly re-routed traffic in Duke/CSX and permissibly re-routed traffic in this case.

75 See BNSF Supplemental Reply at III.A-20, citing Duke/CSX at 15.

76 Average real-world length of haul for OTRR traffic traversing the Snowden-Fargo segment is See Otter Tail Rebuttal electronic workpaper "unitpercar02.xls". Increasing the length of haul for those movements by 101.1 miles results in a › increase in length of haul on BNSF. (101.1 ÷.

equate to a "26 percent increase in length"[77] distorts the impact of the reroute on trip length, which is obviously minimal.

As explained below, OTRR's operations over its Snowden to Fargo segment are indeed as efficient as the BNSF's real-world operations over its Snowden to Fargo segment. Furthermore, BNSF's (rightful) acknowledgment that the traffic it seeks to exclude is being internally re-routed over OTRR directly contradicts and discredits its argument for the exclusion of the re-routed traffic based on its lack of shared facilities. By definition internally re-routed traffic shares facilities with the stand-alone route. By BNSF's own admission internal reroutes are permissible, provided they can be proven to be as efficient as real-world routing.

BNSF's exclusion of the re-routed traffic is also reliant on a misinterpretation of the Coal Rate Guidelines ("Guidelines"), which states that, "the stand-alone railroad may not represent the shortest route for the captive shipper, but the one with the highest traffic densities."[78] In defending its exclusion of internally re-routed general freight traffic from the SARR, BNSF states that the above quoted passage from Guidelines, "clearly contemplates that a shipper may only take the traffic densities that it finds on the route that it selects."[79] And further that, "the complainant may select the route with the greatest traffic densities to serve the issue traffic, but it has no right to create artificial densities by rerouting traffic that does not use the facilities of the selected issue traffic route."[80]

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77 See BNSF Supplemental Reply at III.A-23.
78 See Coal Rate Guidelines, 1 I.C.C.2d at 543-544.
79 See BNSF Supplemental Reply at III.A-26.
80 See BNSF Supplemental Reply at III.A-26

BNSF's argument is invalid for three reasons. First, this argument is inconsistent with its acknowledgment of Board precedent that explicitly allows for internal rerouting of traffic over a SARR, as discussed above.

Second, this statement is contradictory to statements made elsewhere in BNSF's narrative in its attempt to justify its flawed DARA revenue division methodology. Specifically, BNSF states that, "[it] is beyond dispute that the railroad industry cost structure – and hence the ability of rail traffic to cover costs – is affected by economies of density." In its defense of the density adjustment inherent in DARA, BNSF recognizes that without economies of density, cost recovery would not be possible in the railroad industry. Specifically, BNSF quotes the following passage from the Board's decision in *PPL I*:

> [I]t is preferable to allocate capital carrying charges on a level annual basis *to reflect the declining capital investment needed per unit of output as the rail system is used more intensively. This pattern of capital recovery reflects the production economies that characterize the economic structure of the rail industry.*[81]

Here BNSF acknowledges that economies of density are the economic foundation of the rail industry, and yet it seeks to deny the benefit of such economies to the OTRR. BNSF's attempts to justify this contradictory stance by saying that BNSF's use of the two east-west routes through Fargo is efficient.[82] In reality, the two routes are redundant and result in a situation where BNSF has itself failed to take advantage of the very economies of density that serve to reduce costs of providing

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81 See BNSF Supplemental Reply at III.A-36, citing PPL I at 12 n.21 (emphasis added by BNSF in BNSF Supplemental Reply).

82 See BNSF Supplemental Reply at III.A-27.

service. The Board confirmed the appropriateness of Otter Tail's inclusion of the re-routed traffic in Duke/CSX, where it held that, "a SARR need not replicate either the configuration or routing of the defendant carrier, as the use of a different routing can be an appropriate means of removing inefficiencies from a system."[83] BNSF's insistence that OTRR build BNSF's inefficiencies into its SARR are therefore baseless.

Finally, BNSF's statements in this case contradict statements made by BNSF in a recent filing in a similar rate case. Specifically, in its Supplemental Reply in AEPCO, BNSF stated that, "defendants [BNSF and UP] will not object to AEPCO's proposed reroutes of the AEPCO and Tucson Electric Power non-issue coal traffic, so long as their share of revenues for handling the traffic is not artificially diminished by AEPCO's routing choices."[84]

BNSF asserts that overhead non-coal traffic moving between Fargo, ND and Snowden, MT must be excluded from the OTRR traffic group because the OTRR will not provide the same level of service that is currently provided by the BNSF. [85] BNSF bases its assertion on an analysis it performed where it claims it compared year 2021 OTRR average transit times to year 2002 BNSF average transit times for the same trains, and found that the OTRR's average transit times for every type of traffic are longer. BNSF therefore concludes that the OTRR cannot provide the same level of service, and this traffic must be excluded. BNSF's conclusion is, in no uncertain terms, incorrect. BNSF made numerous errors, mathematical, statistical and conceptual, in its purported transit time comparison that invalidate its results. In truth, when correct OTRR transit time statistics are compared against the correct BNSF transit time statistics, it is clearly evident that the OTRR is

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83 See Duke/CSX at 16.
84 See AEPCO at III.A-39.
85 See BNSF Supp. Reply at III.A-23.

providing at least the same level of service as the BNSF, if not better service from a shipper's point of view.

To make its invalid claim about OTRR's service, BNSF performed an analysis that purportedly calculated the average transit times by traffic group for BNSF trains moving on the Fargo-Minot-Snowden line segment between October 10 and October 18, 2002, and compared these times to what BNSF claims are the average transit times for the same trains moving on the OTRR over the Fargo-Glendive-Snowden line segment between October 10 and October 18, 2021. There are numerous errors and flaws in BNSF's analysis. They include:

a. BNSF comparing the OTRR traffic group to the wrong BNSF traffic group moving during the wrong time period;

b. BNSF overstating OTRR average transit times; and,

c. BNSF comparing an incomplete set of transit time statistics.

Each one of these errors is discussed more fully below.

(a) BNSF Compared the Wrong Traffic Groups and Time Periods

BNSF claims that it compared Otter Tail's string program transit times for rerouted non-coal traffic during Otter Tail's string model study period of October 11 to October 18 to the real world transit times for those same trains on those same days.[86] BNSF's claim is incorrect. BNSF ignores the fact that Otter Tail's trains are moving in a period 20-years in the future, when, as both BNSF's and Otter Tail's forecasts show, more traffic will be moving over these line segments than currently

[86] See BNSF Supp. Reply at III.A-24.

moves. [87] Otter Tail's transit times are burdened with facing much greater traffic levels than those currently faced by BNSF, yet BNSF has made no allowance for this fact in its comparison.

Moreover, BNSF's presumptive comparison utilized the wrong BNSF traffic group. BNSF based its comparison on BNSF trains operating over an eight day period, and claims this is the service standard that the OTRR must meet. Service standards in transportation are normally based on some long-term standard such as quarterly, semi-annual, or annual transit or cycle times. The reason for this is to mitigate any unforeseen or unusual events that could adversely skew short-term measures. The proper analysis to perform to ascertain whether the OTRR can provide the same level of service is to compare OTRR statistics to long-term levels of service. This is the approach Otter Tail took in its Opening Errata transit time comparison, and the approach BNSF should have used in its comparison.

(b) BNSF Overstated OTRR Transit Times
For Trains Moving From Fargo to Glendive

Otter Tail stated in its Opening Errata that it adjusted the train list used in its string diagram model to reflect trains moving from Fargo to Snowden as moving in two parts.[88] Within the string diagram train list, the first part of the Fargo to Snowden movement shows the trains moving between Fargo and Glendive using their OTRR train number with an "A" appended to the end to identify this as only a partial movement. The second part of the movement shows the trains moving between Glendive and Snowden with a "B" appended. The total transit time for each train can be determined

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87 See Otter Tail Opening electronic file "Otter Tail Railroad Coal Traffic Forecast.xls," which shows Otter Tail's forecast of future coal traffic, and Otter Tail's Opening electronic file "Ottertailsac02x.xls," which contains BNSF's Long Range Plan showing future growth in non-coal traffic groups.

88 See Otter Tail Opening Errata at 4.

by adding the transit time from the Fargo to Glendive portion of the movement to the Glendive to Snowden portion.[89]

In developing the average transit times for trains moving between Fargo and Snowden, BNSF added, for some unexplained reason, an additional hour to the combined transit times.[90] This not so clever slight-of -hand increased the OTRR transit times by approximately seven (7) percent. As explained in section III-C-3, above, empty OTRR coal trains stop in Glendive for 1 hour, but general freight trains do not. There is no reason for BNSF to add this additional time to the OTRR transit times.

(c) BNSF Is Comparing An Incomplete Set of Transit Time Statistics

BNSF asserts that because its average transit times are in some cases less than the average OTRR transit times, the OTRR is not providing the same level of service as the BNSF. [91] Simply comparing average times provides an incomplete picture. As anyone who has taken a basic statistics course knows, comparing averages of a data set without taking into consideration the variance or standard deviation of that set provides no probative evidence.[92] This is true for two basic reasons.

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89 See Otter Tail Opening Errata electronic workpaper "Transit Time Comparison.xls."

90 See BNSF Supp. Reply electronic file "NonCoal Transit Time Comparison (Snowden-Fargo) for Supp. Final.xls," worksheet "timese supplemental," cells HI4 to HI10.

91 BNSF asserts at III.A-24 of its Supplemental Reply that Otter Tail ignored switching on for manifest ("M") trains and premium intermodal trains ("P"), and, therefore, Otter Tail's shorter transit times for these train types must be disregarded. BNSF is wrong. In selecting its OTRR traffic group, Otter Tail strived to select only that traffic that moved in train-load service over the OTRR route, including M and P trains. In its Reply evidence, BNSF pointed out that some westbound P trains receive a limited amount of I and I switching in Minot, but made no claims about switching on M trains indicating that these trains are moving over the OTRR system in trainload service. Otter Tail has taken into consideration the limited I and I switching oncertain westbound P trains in its rebuttal. Even with this additional time, Otter Tail's transit times for P trains is still less than BNSF's.

92 See, for example, "Statistics For Business and Economics" by Paul Newbold, "A measure of central location is almost never, by itself, sufficient to provide an adequate summary of the characteristics of a set of data. We will usually require, in addition, a measure of the amount of dispersion in the data." A copy of the relevant pages is contained in Otter Tail's Rebuttal Workpapers at Vol. III, pp. 5560 - 5561.

First, from an operational stand-point, the lack of a variance or standard deviation around an average transit time does not allow one to gage the consistency of the service being offered. Second, from a statistical standpoint, without a variance or standard deviation, it is impossible to develop a confidence interval around a calculated sample average. Both are critical in determining if service levels are being met.

i. The OTRR Provides More Consistent Service Than The BNSF

BNSF simply, and somewhat naively, assumes that a lower average transit time means better service. A short example will illustrate why BNSF's assumption is clearly wrong. Assume a shipper has the option to ship from an origin to a destination by two railroads, Railroad (1) and Railroad (2). Over the last year, the shipper made five (5) shipments with each railroad and incurred the transit times shown in Table III-A-1 below.

Table III-A-1
Illustrative Example of Transit Time Comparison

		Railroad (1) Times In Hours (1)	Railroad (2) Times In Hours (2)
1.	Shipment 1	110	120
2.	Shipment 2	100	150
3.	Shipment 3	90	50
4.	Shipment 4	100	70
5.	Shipment 5	100	90
6.	Average	100	96
7.	Standard Deviation	7.1	39.7

As shown in Table III-A-1 above, Railroad (2) had a lower average transit time, and, under BNSF's simplistic view of service levels, would be deemed to have provided a better level of service. However, Railroad (1) with its slightly higher transit time clearly provided a more consistent and reliable level of service as shown by its much lower standard deviation in transit times.

Shippers have repeatedly stated that what they crave from railroads is reliability and consistency of service.[93] And BNSF has heard these cries from its shippers as evidenced by its public statements about striving to provide consistent service:

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[93] See Otter Rebuttal workpapers, Vol. III, pp. 5539 - 5558.

> "BNSF has long been committed to providing customers with consistent and reliable service between major production and consumption markets." [94]
>
> "BNSF is committed to providing the most consistent on-time performance in the industry." [95]
>
> "Reliable consistent service is essential to railroad customers."[96]

Based on its non-litigation, public statements, BNSF clearly believes reliability and consistency of service is a key driver, if not the key driver, of customer service.

As the example in Table III-A-1 shows above, determining whether or not a railroad is providing reliable and consistent service requires more than looking at average transit times. Average transit times only provide one characteristic of the rail service provided, namely identifying the central mean tendency of the service. What is also required to judge whether service is effective is determining the dispersion characteristics of the service. The amount of dispersion, as indicated by the standard deviation, identifies how far from the average the service can be expected to vary. The lower the standard deviation, the more closely grouped the data points are around the central mean characteristic. When measuring railroad services, the lower the standard deviation, the more reliable and consistent the railroad is in meeting its average transit time.

As shown in Table III-A-2 below, when train speed, as measured by average transit time, and consistency of operation, as measured by standard deviation of those transit times, are compared

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94 BNSF MarketingNews June 16, 2003. See Otter Tail Rebuttal Workpaper at Vol. III, p. 5536.
95 BNSF MarketingNews February 27, 2004. See Otter Tail Rebuttal Workpaper at Vol. III, p. 5535.
96 BNSF Railroad Industry Performance Measures. See Otter Tail Rebuttal Workpaper at Vol. III, p. 5537.

between the BNSF and the OTRR, the OTRR is clearly providing the more reliable, consistent service rail customers seek.

Table III-A-2
Comparison of BNSF and OTRR Average Transit Times and Standard Deviations Between Fargo, ND and Snowden, MT

	Train Type[2]	BNSF 2002 Fargo- Snowden Transit Times via Minot [1] Average	BNSF 2002 Fargo- Snowden Transit Times via Minot [1] One Std. Dev.[3]	OTRR 10/11 to 10/18/21 Fargo-Snowden Transit Times via Glendive Average	OTRR 10/11 to 10/18/21 Fargo-Snowden Transit Times via Glendive One Std. Dev.[3]
	(1)	(2)	(3)	(4)	(5)
1.	Bare Table Intermodal ("B")			[4]	[4]
2.	Loaded Unit Grain ("G")			16.7	1.4
3.	High Priority Manifest ("H")			13.9	1.2
4.	Normal Priority Manifest ("M")			13.0	1.7
5.	Premium Service Intermodal ("P")			14.8	2.2
6.	Stack Intermodal ("S")			14.2	1.7
7.	Other Unit Train ("U")			14.4	1.8
8.	Vehicle Train ("V")			13.4	1.1
9.	Empty Unit Grain Train ("X")			14.4	1.9
10.	Highest Priority Intermodal ("Z")	**Excluded**		**Excluded**	
11.	Average			14.4	1.9

1 Total BNSF transit time between Fargo and Snowden via Minot was developed from BNSF 2002 train movement records.
2 Includes trains moving between Fargo and Snowden and Snowden and Fargo.
3 The statistics shown are at one (1) sample standard deviation. The standard deviation indicates how the numbers in a data set vary from the average.
4 This train type did not move during Otter Tail's String Model study period.
Source: Otter Tail Rebuttal electronic workpaper "Rebuttal Transit Time Comparison (Base Case).xls".

Table III-A-2 above shows that, while on a combined bases BNSF's average transit times are about [redacted] shorter than OTRR's, the OTRR's standard deviations are on a combined bases [redacted] less than BNSF's. As stated above, standard deviation is an indication of how far

the data samples are varying from the average, so a smaller standard deviation indicates less variance from the average. What these statistics indicate is that Otter Tail is moving its trains between Fargo and Snowden in nearly the same amount of time, but doing it on a much more consistent basis. BNSF cannot deny that it believes consistency is a key factor of customer service, and based on the data in Table III-A-2, the OTRR is providing more consistent and reliable service than the BNSF between Fargo and Snowden.

ii. Otter Tail's Average Transit Times Are Well Within The Range of BNSF's

The second reason it is imperative that measures of dispersion are utilized when analyzing averaged data sets is that it allows for the statistical inference of the sample data set to the population data set. In other words, it allows the user to infer, based on statistical probabilities, that the sample taken is representative of the whole. Applying this concept to the transit time analysis between the BNSF and the OTRR, the question becomes, are the OTRR transit times statistically different than the BNSF's transit times between Fargo and Snowden? The answer to this question is no.

To provide insight into where the true transit times lie, one must look at more than the simple average transit times, and take into consideration the dispersion of the sample transit times. Table III-A-2 above showed the average and standard deviation of BNSF's and OTRR's transit times between Fargo and Snowden. These statistics provide basic insights into the level and consistency of service provided by both railroads. These two statistics also allow for the creation of an interval estimate with a defined probability, or a confidence interval, around which statistical inferences can be made about the transit times. A confidence interval is an estimator for a statistical parameter for determining a range, or interval, in which the parameter is likely to fall. Confidence intervals are

usually constructed at 90, 95, or 99 percent intervals. A 90 percent confidence interval will utilize approximately 1.65 standard deviations in its creation, while a 95 percent confidence interval will use approximately 2 standard deviations, and 99 percent confidence interval will use 3 standard deviations. In Table III-A-3 below, Otter Tail has constructed 99 percent confidence intervals around the average transit times for trains moving between Fargo and Snowden on the OTRR and the BNSF, and for the average total BNSF transit times from BNSF origins to BNSF destinations for trains traversing BNSF's Fargo-Minot-Snowden line segment.[97]

[97] See Otter Tail Rebuttal workpapers Vol. III, pp. 5563 - 5574 for more information on the statistical inference and confidence intervals. In this case, Otter Tail has only shown the upper limit of the confidence interval.

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Table III-A-3
Comparison of BNSF and OTRR Effective Transit Times Between Fargo, ND and Snowden, MT

	Train Type[3]	BNSF 2002 Total Transit Time From BNSF to Origin BNSF Final Destination[1] Average	Three Std. Dev.[4]	99 Percent Confidence Interval[5]	BNSF 2002 Fargo-Snowden Transit Times via Minot[2] Average	Three Std. Dev.[4]	99 Percent Confidence Interval[5]	OTRR 10/11 to 10/18/21 Fargo-Snowden Transit Times via Glendive Average	Three Std. Dev.[4]	99 Percent Confidence Interval[5]
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1.	Bare Table Intermodal ("B")	[6]	[6]	[6]				[7]	[7]	[7]
2.	Loaded Unit Grain ("G")							16.7	4.3	21.0
3.	High Priority Manifest ("H")							13.9	3.6	17.5
4.	Normal Priority Manifest ("M")							13.0	5.2	18.2
5.	Premium Service Intermodal ("P")							14.8	6.5	21.3
6.	Stack Intermodal ("S")							14.2	5.0	19.2
7.	Other Unit Train ("U")	[6]	[6]					14.4	5.5	19.9
8.	Vehicle Train ("V")							13.4	3.3	16.7
9.	Empty Unit Grain Train ("X")	[6]	[6]					14.4	5.6	20.0
10.	Highest Priority Intermodal ("Z")		Exclude						Excluded	
11.	Average							14.4	5.6	20.0

1 Total transit time from BNSF origin to BNSF destination was developed from BNSF 2002 revenue files.
2 Total BNSF transit time between Fargo and Snowden via Minot was developed from BNSF 2002 train movement records.
3 Includes trains moving between Fargo and Snowden and Snowden and Fargo.
4 The standard deviation indicates how the numbers in a data set vary from the average. An analysis using three (3) standard deviations provides an approximately 99.73 percent confidence interval around the average.
5 Average transit time plus three (3) standard deviations of the transit time.
6 There is insufficient data in BNSF's 2002 revenue files to calculate a valid transit time.
7 This train type did not move during Otter Tail's String Model study period.

Source: Otter Tail Rebuttal electronic workpaper "Rebuttal Transit Time Comparison (Base Case).xls".

As Table III-A-3 shows, at the 99 percent confidence level, the upper limit of the average OTRR transit times lie between 14.4 and 20.1 hours, while the BNSF's average transit times, at the same 99 percent confidence level, lie between [redacted] hours. This indicates that OTRR's actual average transit times lie within the range of BNSF actual transit times. Or, more simply stated, there

is strong statistical inference (a 99 percent confidence level) that there is no difference between the OTRR's transit times and the BNSF's transit times.

Finally, even BNSF's overstated Reply RTC transit times over the Fargo-Glendive-Snowden route are not appreciatively different than BNSF's transit times on its Fargo-Minot-Snowden route. BNSF's reply analysis shows that the RTC model produced average combined transit times for B-Trains, G-Train, H-Trains, M-Trains, P-Trains, S-Trains, V-Trains and X-Trains of

] and three (3) standard deviations of

hours, and 4.5 hours, respectively. Overall, the average combined RTC transit times for all train types equalled s and three (3) standard deviations of s.[98]

iii. Williston Grain Traffic

BNSF points out in Reply that Otter Tail errantly included 26 loaded and empty unit grain trains that originate or terminate at Williston, North Dakota and that would require off-SARR rerouting. Otter Tail has removed these trains from its traffic group on Rebuttal.

iv. Other General Freight Traffic

BNSF contends that Otter Tail's traffic group is overstated because it includes non-overhead traffic that is switched into or out of through trains at various locations on the OTRR. BNSF asserts that, because these movements involve some switching that is not provided for in the OTRR Operating Plan, Otter Tail must forego the traffic. Otter Tail acknowledges the accuracy of BNSF's criticism, but emphasizes that it erroneously included this traffic because BNSF produced data to

[98] See Otter Tail Rebuttal electronic file "BNSF Reply Fargo-Snowden RTC Times.xls."

Otter Tail in a format that was incomplete and that unnecessarily complicated the traffic selection process for Otter Tail.

In response to Otter Tail's requests for data, BNSF produced separate databases regarding train movements (train event data) and traffic and revenue (traffic data). The train event data show when and where the trains operated, the total number of cars, and the number of loaded cars. The traffic data show origin, destination, commodity, type of car, weight, and revenue. Otter Tail had to use common fields to link the two databases.

Otter Tail began its traffic group selection by identifying non-coal trains that traversed the OTRR in 2002 using the train event data, and then looked to the traffic tapes to determine the revenue-related contents of those trains. Otter Tail's approach was not only appropriate, but unavoidable.[99] The disjointed nature of the data provided by BNSF necessitated the development of a very complicated multi-step procedure to identify and quantify general freight traffic moving in overhead service over the OTRR. In matching traffic data to train event data to calculate revenues on a train-by-train basis, Otter Tail checked each record in the traffic file to verify that the revenue traffic was on the OTRR train when it moved over the OTRR. If a carload made it through the preliminary route screening process, it was included as potential revenue traffic for that train. At the conclusion of the car to train matching procedure, a procedure was run to determine the extent to which the cars identified in the train file were located in the traffic file.

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[99] It would have been pointless for Otter Tail to attempt to construct its traffic base on an individual carload basis, when Otter Tail's objective was to replace the transportation that BNSF provides in moving complete trains (not individual carloads). Without the train event database, Otter Tail could not determine when a train left or arrived at a given point, which would have made it impossible todetermine if the OTRR provides service comparable -- or superior -- to BNSF. Furthermore, the origin-destination ("O-D") information depicted onthe traffic tapes is often insufficient to identify the route with precision.

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In many cases, Otter Tail was able to make a complete "match" between the number of loaded cars shown in traffic tape data and the individual loaded or revenue-bearing cars and containers identified in the train data. However, in a number of cases, there was not a complete match due to erroneous data, corrupted fields, unexplained data entries, etc.

BNSF clearly possesses the ability to present its train and traffic data in ways that are not possible utilizing just the data and data formats that BNSF produced to Otter Tail in discovery. To demonstrate this point, one need look no further than a series of workpapers provided in support of BNSF's Reply Evidence. Specifically, BNSF produced three data summaries that were obtained from BNSF's Transportation Support System (TSS). The summaries were provided at the request of one of BNSF's expert witnesses. The data contained in the summaries, however, were not provided to Otter Tail in any form in this case, prior to their appearance in the BNSF Reply workpapers. Each of the data summaries is discussed below.

[redacted]

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100 See Otter Tail's Rebuttal workpapers at Vol. III, p. 5580.
101 Id, at Vol. III, pp. 5580 - 5581.

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[102]

These data summaries, and in particular the data summary contained in the file titled

prove with certainty that BNSF has chosen to provide traffic and train data to Otter Tail in a cumbersome and incomplete format in this proceeding. BNSF failed to provide elements of TSS that would have allowed Otter Tail to readily match the train event data with the traffic data. As a consequence, Otter Tail was forced to match train movement and revenue data without one or several important links. It should come as no surprise therefore, that Otter Tail's complicated matching process was not successful in some instances. Otter Tail's inadvertent classification in Opening of some originating and terminating general freight traffic as overhead traffic is corrected in Rebuttal by eliminating approximately 500,000 tons and $3.2 million in 2002 revenues. While Otter Tail's matching procedure resulted in a small amount of overstatement with respect to a handful of movements that were included in the traffic group in error as a result of incomplete data, the far more troubling result of the process is that Otter Tail was denied access to the data that would have facilitated a 100% matching between the train and revenue data sets.

Moreover, as noted in Opening, Otter Tail's inability to locate revenue data for all revenue carloads moving in overhead service over the OTRR actually understates SARR revenues[103] because the OTRR is premised on handling substantially greater traffic than that for which it receives revenues.

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[102] Id, at Vol. III, p. 5581.
[103] See Otter Tail Opening at III-A-8.

Thus, Otter Tail's revenue analysis for overhead general freight traffic is quite conservative even with the erroneous inclusion of a small amount of non-overhead traffic.

Furthermore, BNSF is critical of Otter Tail for not having considered the impact of I&I switching on through trains at Minot, ND, even as it did not provide the data necessary to conduct any analysis of that switching operation. BNSF only provided the necessary data to its own experts for the purpose of Rebutting Otter Tail's alleged oversight.

2. OTRR HISTORIC AND PROJECTED TRAFFIC VOLUMES

As discussed above, Otter Tail utilized BNSF's 2002 train event and traffic tapes to identify 180.4 million tons of coal[104] that would originate and move over all or part of the OTRR system and 21.2 million tons of general freight that would move over the OTRR in overhead service.[105] BNSF contends in its Reply that there are major flaws with Otter Tail's volume assumptions. As discussed above, BNSF maintains that Otter Tail improperly included several movements in its traffic base, and, as a result, substantially overstated the volumes in the SARR network. Otter Tail has explained why BNSF has not provided valid reasons for the exclusion of the traffic in question. As a result, Otter Tail retains most of these movements in its Rebuttal OTRR traffic base. Otter Tail's Rebuttal Exhibit III-A-11 shows the origin, destination, on-SAC location, off-SAC location, restated net tons, restated total BNSF revenues and restated OTRR revenues for each movement on the OTRR in 2002.

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104 Otter Tail's alternative SARR moves 212.1 million tons of coal in the base year, as discussed above. See Otter Tail Supplemental Opening evidence at III-A-2.

105 See Otter Tail Rebuttal Exhibit III-A-11.

a. 2002 Base Year Volumes

In its Opening Evidence, Otter Tail developed volumes for the 2002 base year from train and traffic tapes produced by BNSF in discovery. In Reply, BNSF accepted use of these data sources to establish 2002 base year volumes but modified those volumes to exclude tonnage as described in section III-A-1, above. BNSF's reasons for excluding the traffic are largely baseless as discussed above, and as such, Otter Tail retains most of the traffic in its 2002 volumes. Otter Tail's restated Rebuttal 2002 OTRR traffic volume is 201.5 million tons.[106]

i. Coal Volumes

In its Opening Evidence, Otter Tail developed coal volumes for 2002 using traffic tapes produced by BNSF. In Reply, BNSF accepted these sources to establish volumes for 2002, but again excluded 1) the traffic originating at Southern PRB mines and exiting the OTRR at Converse, Wyoming, 2) a group of movements that allegedly did not meet Otter Tail's percent of haul requirement, and 3) two groups of traffic that BNSF alleges will not be available to Otter Tail in the future, namely the Highbridge/Riverside coal and some of the coal volume destined for interchange at Superior Dock. As set forth above, BNSF's reasons for excluding this traffic are invalid, and as such, Otter Tail retains the traffic in its 2002 volumes. Otter Tail's Rebuttal 2002 OTRR coal traffic remains at the same 180.4 million ton level presented in Otter Tail's Opening Evidence.[107]

ii. Non-Coal Volumes

In its Opening Evidence, Otter Tail developed non-coal volumes for 2002 using train event and traffic tapes produced by BNSF. In Reply, BNSF accepted these sources to establish volumes for

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106 See Otter Tail Rebuttal Exhibit III-A-12 Otter Tail's alternative SARR traffic volume is 233.3 million tons in 2002.
107 See Otter Tail Rebuttal Exhibit III-A-12.

2002, but excluded 1) all Z-train intermodal traffic, 2) grain trains that would require off-SARR re-routing, and 3) carload traffic originating or terminating on OTRR lines. In its Supplemental Reply, BNSF further excluded all internally re-routed non-coal traffic, in addition to the Z-trains excluded by BNSF in its original Reply. As set forth above, BNSF's reasons for excluding the internally re-routed general freight traffic are invalid with the exception of Z-trains, and the other traffic accounts for a very small amount of OTRR revenues. As discussed above, the disjointed and incomplete nature of the train event and traffic data as it was provided to Otter Tail in Opening has led to minor overstatement of general freight traffic lading weight and revenues for a small number of overhead trains. Otter Tail has accordingly reduced the revenue levels as a result of the elimination of the cars in question from the traffic group, even though the nature of the data provided by BNSF requires that Otter Tail operating expenses will remain at the same level as in opening. Otter Tail's Rebuttal 2002 OTRR general freight traffic is 21.2 million tons.[108]

b. Projected Volumes

i. 2003 Coal Volumes

In its Opening Evidence, Otter Tail developed coal volumes for 2003 using BNSF's 2003 O/D Forecast. BNSF accepted the use of this source to establish 2003 volume levels, but for the reasons set forth above, excluded select Southern PRB originations and traffic that allegedly did not meet Otter Tail's selection criteria.[109] BNSF's exclusion of this traffic also lowers the volumes moving on the OTRR in years 2004 to 2021 because these years use 2003 traffic figures as a base for forecasting growth. As set forth above, BNSF's reasons for excluding the traffic are invalid and

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108 See Otter Tail Rebuttal Exhibit III-A-12.
109 See BNSF Reply at III.A-19 through III.A-39.

Otter Tail retains these movements in its 2003 traffic group. Otter Tail's 2003 OTRR traffic levels for coal remain at the same 179.0 million tons that were presented in Otter Tail's Opening Evidence.

ii. 2004 through 2021 Coal Volumes

In its Opening Evidence, Otter Tail relied upon an EIA PRB forecast presented in the EIA's "2003 Annual Energy Outlook" ("EIA 2003 PRB Forecast" or "EIA Aggregate Forecast") to project volumes to OTRR-served plants for 2004 to 2021. Otter Tail capped the projected tonnage growth at 85 percent of plant capacity for both Otter Tail and non-Otter Tail plants.

In its Reply, BNSF accepted Otter Tail's use of the EIA's 2003 PRB forecast to develop coal traffic growth between 2004 and 2021, and accepted Otter Tail's cap on future volume growth at 85 percent of plant capacity.[110] Because Otter Tail has made no changes from its Opening OTRR coal traffic forecast, its Rebuttal OTRR coal traffic forecast for years 2004 through 2021 remains the same.

iii. Non-Coal Volumes

Non-Coal Volumes were held constant at 2002 levels through the twenty-year forecast period. BNSF accepted Otter Tail's presumption that traffic levels would not grow or decline from 2002 through 2021. The exclusion of internally re-routed Z-trains and a small group of cars and grain trains from Otter Tail's base year non-coal traffic group, as detailed above, carries forward throughout the twenty year forecast period.

c. Summary

Table III-A-4 below compares Otter Tail's Opening and Rebuttal OTRR traffic forecasts to the Reply OTRR traffic forecast developed by BNSF. Volumes projected by BNSF are much lower than

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[110] See BNSF Reply at III.A-52 to III.A-53.

Otter Tail's Opening and Rebuttal forecast due to BNSF's erroneous exclusion of 1) Southern PRB originated movements exiting the OTRR at Converse, 2) coal traffic allegedly not meeting Otter Tail's traffic group requirements, 3) future movements of coal to Riverside/Highbridge plants and Superior Dock, and 4) internally re-routed cross-over general freight traffic.

Table III-A-4

OTRR Volumes -- Comparison of Otter Tail and BNSF - Base Case

	Year	Otter Tail Opening Volume [1]	BNSF Reply Volume [2]	Otter Tail Rebuttal Volume [3]
	(1)	(2)	(3)	(4)
1.	2002	205,616,902	133,493,993	201,528,599
2.	2003	204,291,570	132,964,229	200,217,121
3.	2004	205,961,535	134,093,003	201,887,086
4.	2005	207,589,295	134,421,226	203,514,846
5.	2006	211,251,289	136,944,395	207,176,840
6.	2007	215,441,079	138,378,605	211,366,630
7.	2008	218,439,116	140,398,562	214,364,667
8.	2009	220,650,530	141,783,022	216,576,081
9.	2010	224,073,254	143,924,714	219,998,805
10.	2011	225,652,809	144,810,605	221,578,360
11.	2012	226,724,635	145,158,566	222,650,187
12.	2013	227,415,521	145,308,865	223,341,072
13.	2014	227,786,427	145,466,664	223,711,978
14.	2015	228,129,276	145,612,526	224,054,827
15.	2016	228,624,769	145,828,585	224,550,320
16.	2017	229,192,649	146,088,824	225,118,200
17.	2018	229,520,393	146,232,761	225,445,944
18.	2019	229,892,356	146,417,593	225,817,907
19.	2020	230,233,773	146,635,732	226,159,324
20.	2021	230,312,875	146,683,071	226,238,426

1 Source: Otter Tail Opening Exhibit III-A-5.
2 Source: BNSF Reply Table III-A-12, Page III.A-54.
3 Source: Otter Tail Rebuttal Exhibit III-A-12.

For all the reasons discussed above, BNSF's OTRR forecast is extremely understated and unreflective of future traffic possibilities on the OTRR, and as such, Otter Tail's OTRR traffic volume is the best evidence of record.

3. OTRR HISTORIC AND PROJECTED REVENUES

In its Opening Evidence at III-A-2 to III-A-3, Otter Tail stated that the traffic handled by the OTRR system falls into four revenue categories: 1) traffic that originates and terminates on OTRR lines that replicate a BNSF single-line route (the issue traffic); 2) traffic interchanged with a railroad other than BNSF that first moves over OTRR lines that replicate the BNSF system; 3) traffic interchanged with the BNSF that first moves over OTRR lines that replicate the BNSF; and 4) overhead traffic that originates on the BNSF, is interchanged to the OTRR lines that replicate the BNSF for bridge service, and is interchanged back to the BNSF for delivery to final destination.

In its Reply Evidence, BNSF accepted Otter Tail's methodology for calculating revenues on single-line movements, but disagreed with Otter Tail's procedures for determining revenues on cross-over traffic. BNSF also disagreed with Otter Tail's methodology for projecting future OTRR traffic revenues. BNSF's disagreements, and the reasons why these disagreements are invalid, are discussed below.

a. Single-Line Revenues

Otter Tail and BNSF are in agreement with respect to the methodology for calculating OTRR revenues for single-line traffic.[111] As noted in Otter Tail's Opening Evidence, the only single-line movement of traffic on the OTRR is the issue coal traffic for Otter Tail's Big Stone Station.[112] In its Opening Evidence, Otter Tail attributes to the OTRR all of the BNSF revenues for the Big Stone coal traffic. For the period from 2002 through 2003, the BNSF accepts the single-line revenues as

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111 See BNSF Reply at III.A-55.
112 See Otter Tail Opening at III-A-3.

calculated by Otter Tail in its Opening Evidence.[113] While BNSF accepts Otter Tail's methodology to project annual revenues for single-line traffic for the period from 2004 through 2021, the BNSF is critical of Otter Tail's "use of an outdated DRI-WEFA forecast of railroad indicies" to project revenues for the OTRR.[114] In it's Reply Evidence, the BNSF modifies Otter Tail's forecast of revenues for single-line traffic for the period from 2004 through 2021 time period to reflect the use of a more recent RCAF-U forecast published by DRI-WEFA.[115] On Rebuttal, Otter Tail accepts BNSF's modification to the calculation of revenues for single-line traffic. As a result, Otter Tail and BNSF are now in agreement with respect to OTRR revenues from single-line traffic.

b. Divisions Of Revenue - Existing Interchanges

Otter Tail included in its Opening coal traffic group one movement of coal that is interchanged to Otter Tail Valley Railroad Company ("OTVRC") at Fargo, North Dakota for delivery to Otter Tail's Hoot Lake plant. In Reply BNSF is critical of Otter Tail's treatment of the movement for the following reasons: 1) BNSF claims that the movement to Hoot Lake actually interchanges with the OTVRR at Dilworth, Minnesota, which is 4.4 miles east of Fargo;[116] 2) BNSF states that the revenue reported in BNSF's traffic data as BNSF revenues are actually : ire

'[117] As a result, BNSF claims that Otter Tail is not entitled to 100% of the BNSF revenue for this movement. BNSF's language here is significant and must not be overlooked. First, BNSF acknowledged that as part of its agreement it must pay the connecting

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113 See BNSF Reply at III.A-55.
114 See BNSF Reply at III.A-101.
115 See BNSF Reply at III.A-101.
116 See BNSF Reply at III.A-56.
117 See BNSF Reply at III.A-56.

railroad, OTVRR in this case, for performing two functions, 1) carrying the traffic and 2) terminating the movement. [redacted]

[redacted]. Implicit in Otter Tail's market-based divisions methodology is the allocation of revenue to cover terminal costs.

In response to BNSF's disclosure of the existence of this interline revenue division agreement on Reply, Otter Tail submitted a request for workpapers including a specific request for the agreement that governs the revenue divisions between BNSF and OTVRR for this movement.[118] BNSF flatly refused to produce the requested information, stating that Otter Tail's request for the divisions data for this movement was an "unauthorized discovery request[s] seeking additional information relating to BNSF's reply evidence or an elaboration on the substance of BNSF's reply evidence."[119] This response is troubling for two reasons. First, the divisions data for this movement could not be more relevant to this case, as Otter Tail seeks to replicate the actual movement and associated revenue divisions. That the OTRR interchanges the traffic a few miles away from where the actual interchange takes place is a non-issue. Surely, at a minimum, the actual divisions would be applicable to this OTRR movement. Second, the divisions data for this movement should have been provided by BNSF along with other divisions data for interline coal movements in response to Otter Tail's discovery requests.

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118 See Otter Tail's Sixth Request for Workpapers, Request No. 4, included in Otter Tail's Rebuttal Workpapers at Vol. III, pp. 6502 to 6505.

119 See BNSF's response to Otter Tail's Sixth Request for Workpapers at page 1, included in Otter Tail's Rebuttal Workpapers at Vol. III, pp. 5577 to 5578.

In Reply, BNSF calculated the revenue divisions for this movement using its DARA procedure, rather than apply the actual divisions included in its agreement with OTVRR. BNSF's refusal to produce the actual division for this movement and to instead apply its made for litigation revenue allocation methodology is dubious.

As noted above, BNSF indicated in its Reply statement that the revenue included in the data field alleged to contain BNSF revenues actually represents revenues in the case of Hoot Lake coal movements. However, when Otter Tail sought verification of this claim, BNSF refused to provide any proof that the revenue contained in the BNSF revenue field in the BNSF traffic database for Hoot Lake coal movements is in fact . Therefore, Otter Tail retains its Opening calculation for the revenues associated with the movement of Hoot Lake coal traffic.

c. Divisions For Cross-over Traffic

BNSF's most extended treatment of revenue divisions relates to the cross-over traffic that the OTRR interchanges with the residual BNSF. On Opening and in its base case in this Rebuttal, Otter Tail utilizes the market-based divisions where relevant data was provided by BNSF, and the same modified mileage-block prorate ("MMP") methodology that was a standard part of rate cases beginning with McCarty Farms for traffic for which relevant market division data was not provided. Otter Tail's use of these methodologies is consistent with the Board's statements in TMPA and FMC that, where the carrier refuses to produce information as to its actual divisions and how they are

made, the MMP method "is the best procedure for allocating revenues to carriers where market-based divisions are not available."[120] The Board further stated that:

> "Normally, when two or more railroads serve a shipper in joint-line service, they negotiate a market-based revenue division of the rate. Lacking information to determine BNSF's typical percentage division in various market-driven situations, TMPA divided the revenues on cross-over traffic between the GCRR and the residual BNSF based on the modified mileage block prorate (MMBP) method that has been used in prior SAC cases."[121]

Implicit in both of these statements is the notion that the preferred method is to apply actual market-based divisions where they are available, as is the case here.

In its alternative case, presented in its Supplemental Opening evidence, Otter Tail uses the STB's MSP revenue divisions approach to allocate revenues for cross-over traffic for all traffic types.[122] While BNSF's preferred revenue division methodology remains DARA, BNSF seeks to alter the Board's MSP methodology in its Supplemental Reply, "to reflect more accurately the costs to originate and terminate the different types of traffic included in the SARR."[123] In its narrative, BNSF claims to have "developed more appropriate mileage blocks for originating coal, merchandise

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120 See FMC at 27-29 & n.62; See also McCarty Farms at 9; WPL at 24. In Nevada Power II, the Commission accepted use of a straight mileage prorate method. In McCarty Farms, as in Nevada Power II, the Board rejected the railroad's proposed "efficient component pricing method" which allowed the SARR to interchange traffic with the residual incumbent only if the arrangement made the residual incumbent better off than if the SARR did not exist, explaining that "it would be inconsistent with the nature and purpose of a SAC analysis to treat the SARR as a competitor of the incumbent railroad rather than its replacement." See McCarty Farms at 472. However, McCarty Farms did accept BN's proposal to adopt the modified mileage-block method used in costing the Waybill in order to "account for the non-mileage-based costs incurred when carriers switch freight cars (at origin, destination, and interchange points)." Id.

121 See TMPA at 31, footnotes omitted.

122 See Otter Tail Supplemental Opening electronic files "Otter Tail Railroad Coal Traffic Forecast-Supplemental.xls," and "ottertailsac02x-MSP.xls."

123 See BNSF Supplemental Reply at III.A-34.

and intermodal traffic."[124] BNSF includes a more detailed description of its alternative MSP calculations in its Supplemental Reply exhibit III.A-9. As shown in Otter Tail Rebuttal Exhibit III-A-13, BNSF's analysis is inconsistent and self-contradictory, and should therefore be rejected in its entirety.

In Reply, BNSF ignores the established legal and economic foundation for using actual divisions and the MMP method and claims that cross-over revenue divisions should no longer be market-based. Rather, BNSF argues for its DARA, a cost-based standard based on URCS variable costs, plus an allocation of contribution above URCS variable cost, adjusted by density, to offset the supposedly higher unit capital costs on the lines of the residual carrier that carry less traffic. BNSF claims that its DARA procedure "provides a more appropriate allocation of revenue for cost recovery purposes."[125]

To support its DARA procedure, BNSF argues: 1) market-based divisions are no longer appropriate for allocating revenues between the SARR and the residual incumbent; 2) that the MMP (and MSP) favors the SARR and allows the complainant to abuse the stand-alone process; and 3) the residual incumbent, by definition will have lighter density lines than the SARR resulting in higher unit costs than the SARR, which must be covered by the residual incumbent's share of divisions. All of BNSF's arguments are baseless.[126]

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124 See BNSF Supplemental Reply at III.A-34.
125 See BNSF Reply at III.A-58.
126 Evidence of the inapplicability of the DARA procedure is also included in the statement of Dr. George Borts contained in Otter Tail Reply Exhibit III-A-8.

i. BNSF's Cost-Based Methodology Contradicts Its Own Revenue Forecasting Methodology and It Is Contrary To Established Precedent And The Underlying Policies Of The Guidelines

BNSF and the Board have both accepted in previous cases, and BNSF accepts in its Reply Evidence in this case, the use of recently negotiated coal contracts between BNSF and competitive coal shippers to calculate an average market rate for competitive coal shippers. Both Otter Tail and BNSF apply a market rate to projected volumes to calculate the future through movement revenues for competitive movements, after the expiration of the current governing contract. In fact, in this case BNSF argues, as it has in previous cases, that the same methodology of applying a market rate to future volumes is the most accurate way to calculate through movement revenues for captive coal shippers as well. In other words, BNSF relies on a market rate to forecast through revenues for every coal movement on the OTRR.

These market-rate calculations that BNSF relies on to project through movement revenues are not in any way cost-based. Furthermore, BNSF makes no attempt whatsoever to determine whether the market rate it applies to through movements of coal covers the cost of providing service to the shippers to whose traffic the market rate is applied. Rather, BNSF rightly assumes that full cost coverage is implicit in the market-rate, because the market-rates are calculated using rates for similar movements. Despite BNSF's acceptance of market-rate calculations to project though movement revenues, BNSF vehemently opposes the use of market-based revenue divisions. BNSF's opposition to the application of market divisions to through revenues is based almost solely on the premise that, because costs are movement specific, market-based divisions will not necessarily cover both carriers'

costs. BNSF unambiguously states that, "[t]he place to start in deriving the second-best principles for dealing with cross-over traffic is with the concept of cost-recovery."[127]

This disconnect in logic is fundamentally flawed. It is inconceivable that it could be entirely appropriate to estimate total movement revenues based solely on market rates and at the same time inappropriate to base the divisions of those revenues on market-based divisions. BNSF's cost-based DARA methodology directly contradicts the principles that lie at the foundation of its method of calculating forecasted through movement revenues in its Reply evidence.

At the heart of BNSF's argument for cost-based revenue divisions is the premise that in the real world, revenue divisions are negotiated to ensure that both sides would be better off moving the traffic than not moving the traffic.[128] To that end, BNSF claims that DARA "allocates sufficient revenue to each of the two carriers to cover their respective attributable costs on cross-over movements."[129] However, BNSF's revenue divisions workpapers show that BNSF calculated costs exceed movement revenues on 10.8 million tons (10 percent) of coal traffic it proposes to move over the OTRR.[130] Having realized that the results of BNSF's revenue division analysis indicate that ten percent of BNSF's PRB coal traffic base moves at rates that do not provide cost coverage should have raised a red flag to BNSF. Either its revenues division methodology is seriously flawed, it has substantially understated through movement revenues, or both.

Instead of re-thinking its obviously flawed logic, BNSF plowed ahead with its clearly defective methodology. Where BNSF calculated a negative contribution on coal movements, it divided the

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127 See BNSF Reply at III.A-60.
128 See BNSF Reply at III.A-61 through III.A-62.
129 BNSF calculates "attributable costs" using Ex Parte 399 variable costing procedures. See BNSF Reply at III.A-58.
130 See BNSF Reply electronic workpaper "coal move.xls" at sheet "summary" column AN and Otter Tail Rebuttal electronic workpaper "coal move Sum Neg Cont.xls" at sheet "summary" columns AN and AO.

revenues for the movement by applying the ratio of SARR cost to the sum of SARR and residual incumbent cost to the through movement revenue. This methodology ensures that neither OTRR nor the residual BNSF recovers the costs associated with moving the traffic, according to BNSF's calculation. This truth exposes, as a farce, the BNSF's claim that DARA results in a pareto superior relationship between interline partners.

In Nevada Power II, the ICC determined that the standard for estimating cross-over traffic revenues was an estimate of market-based divisions. Using revenue adequacy as a launch pad for justifying the reversal of Nevada Power II and the elimination of market-based divisions in favor of its cost-based DARA procedure, BNSF argues that "the objective should be to fashion a rule for dealing with cross-over traffic that can feasibly be implemented... and tries to ensure that the residual incumbent's long-run viability is not undermined by siphoning-off net revenues to the SARR."[131] BNSF later claims, despite the fact that estimating market-based divisions is the standard for determining cross-over revenues, and despite the fact both parties use market rates to forecast through movement revenues for OTRR traffic, that market-based divisions for cross-over traffic are irrelevant and the Board must rely on cost-based divisions to allocate revenues between the SARR and the residual incumbent:

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[131] See BNSF Reply at III.A-59 to III.A-60.

> On the conceptual level, there is no similarity between real world interline arrangements and the hypothetical arrangement between the SARR and the residual incumbent. The real world divisions negotiation occurs in the context of creating something - a new interline movement - that did not exist. In contrast, the hypothetical arrangement between the SARR and the residual incumbent represents the fragmentation of an existing through movement into two arbitrary components.[132]
>
> In the contrived world of hypothetical cross-over movements, nothing new is being created. Instead there is artificial fragmentation. Since the shipper is already being served by the incumbent, there is no affirmative rationale for this fragmentation of existing through movements into unnecessary pieces and no apparent social good that flows from such fragmentation. This fragmentation is an outgrowth of the Board's prior approach that allowed the hypothetical entrant is entitled to take not only whatever traffic of the residual incumbent it chooses but also entitled to provide whatever portions of through service that it elects.[133]

BNSF's reliance on revenue adequacy of the residual incumbent for replacing a market-based division standard with a cost-based standard is a red herring. Estimating divisions on cross-over traffic occurs only within the context of the hypothetical SARR and therefore does not change BNSF's actual revenues on the cross-over traffic. Stated differently, the division assigned to the residual incumbent in the stand-alone context does not change BNSF's revenue in the real world and, therefore, BNSF's claimed impact on its revenue adequacy is nonexistent and totally meaningless. If the Board determines that the rates at issue in this proceeding exceed maximum reasonable levels, only the issue rates, not those on BNSF's portion of the cross-over traffic, will be reduced.

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132 See BNSF Reply at III.A-61.
133 See BNSF Reply at III.A-62.

BNSF then quotes the PPL decision as support for its cost-based division, noting the Board's statement that, "A residual carrier would agree to move the traffic so long as the revenue division would allow it to cover its attributable costs associated with handling the traffic."[134] BNSF also cites the TMPA decision to support its cost-based division:

> The revenue each carrier receives should cover the attributable costs of the service it provides and make some contribution to its unattributable costs. As long as the traffic makes any contribution to a carrier's unattributable cost, the railroad is better off participating in the transportation than not participating in it.[135]

BNSF intentionally misinterprets both the PPL and TMPA decisions in its search to find any authority for its DARA procedure. In both of these proceedings the Board stated that the residual incumbent would move the cross-over traffic as long as it makes *any* contribution to its unattributable costs. PPL was preceded by Rate Guidelines--Non-Coal Proceedings, where the Board rejected the AAR's proposed simplified SAC model ("SSAC") because it required cross-over traffic to make an excessive contribution to off-system costs:

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134 See BNSF Reply at III.A-39, citing PPL at 10, n 20 citing Guidelines at 540; and Rate guidelines Non-Coal Proceedings, 1 STB 1004, 1016 (1996).

135 See BNSF Reply at III.A-139, citing TMPA at 31, n. 73.

> Second, AAR-SSAC appears to be inconsistent with CMP-SAC because it does not permit the inclusion of, and hence cost sharing with, other traffic unless that traffic covers not only its own attributable costs but also a full pro rata share of the joint and common (unattributable) costs of every other line segment used by that traffic [citing Nevada Power II]. The effect is to overstate the revenue requirements for those other lines and understate the potential revenue contribution to the stand-alone system from that traffic. Moreover, the result is inconsistent with sound railroad economic principles. As a general rule, it is better for a railroad to carry any traffic that covers its own (attributable) costs and makes any contribution (no matter how slight) to joint and common costs. Indeed, most rail traffic is competitively priced and thus makes varying levels of contribution toward unattributable costs; but whatever portion is paid towards the unattributable costs benefits the shippers of captive traffic by relieving them from bearing that portion of the costs. 1 S.T.B. at 1015-16. (emphasis added).

There is no hint in any of these decisions that the Board must allocate the contribution above URCS variable costs based on density. Again, to require such an allocation would be an impermissible barrier to entry in the fully contested realm of the Guidelines and stand-alone costing.

In actuality, the DARA methodology is a giant leap from the Board's statements in PPL and TMPA that the residual incumbent's divisions from cross-over traffic need only cover attributable cost and make some contribution to unattributable costs, especially when it has already been shown that the residual incumbent's divisions based on MMP not only cover attributable costs, but also make a substantial contribution to the residual incumbent's unattributable costs.

As discussed infra, based on the experience of Mr. David Weishaar, former Vice President of Coal Marketing for the Chicago & North Western Railway ("CNW"), use of market-based divisions, where they are available, and MMP in lieu of unavailable market-based divisions remains appropriate because market-based divisions are by definition equal to those achieved through negotiations among carriers and MMP produces divisions that are similar to those achieved through

negotiations among carriers. To artificially impose a cost-based approach to creating divisions would be a barrier to entry prohibited by the Guidelines by denying the SARR access to revenues similar to those enjoyed by the incumbent itself.

ii. BNSF's DARA Procedure Is Fundamentally Flawed

In the present case, BNSF employs DARA to allocate any revenue in excess of URCS variable cost. If a freight movement generates revenue equal to or less than URCS variable cost, BNSF uses URCS to allocate it between the SARR and the connecting carrier(s). If, however, revenue exceeds URCS, then BNSF allocates the excess on the basis of density. BNSF's DARA proposal is not only contrary to the rule that estimates of revenue divisions for cross-over traffic must be market-based and contrary to how rate divisions are negotiated between railroads, it also suffers from a wide range of other flaws.

First, requiring the SARR to agree to divisions that assure the residual carrier of receiving anything more than some contribution above its attributable costs (which approximate its directly variable costs) violates stand-alone cost theory. An important feature of CMP is that a "captive shipper should not bear the costs of any facilities or services from which it derives no benefit."[136] BNSF's approach is inappropriate because it would force the SARR to bear a portion of the off-system costs based on the densities of the residual lines, or lack thereof.

Second, market-based divisions are appropriate for allocating cross-over revenue because they are reflective of real world market forces and because they are consistent with the practice of using a market-based rate to forecast through movement revenues. MMP is appropriate for allocating cross-over revenues because it is facially neutral, easily administered, representative of how such

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[136] See Guidelines at 523.

allocations get resolved in the "real world," and thus rests on a consistent, economically principled foundation. In contrast, BNSF's density-based approach 1) is not neutral (it is expressly designed to benefit the lower density lines that are inherently less efficient and thus more likely to be excluded from a SARR); 2) is not easily administered; 3) totally ignores the cost structure of the SARR by replacing it with BNSF's own URCS unit costs, 4) assumes that fixed costs are constant for all traffic moving over all rail lines, and 5) is not actually utilized in establishing real-world divisions.

Third, in support of its DARA methodology, BNSF asserts that the central defect of the MMP method is that it "implicitly treats each mile of the SARR, including the very dense portions adjacent to the PRB, as having the same total cost per ton as the less dense portions of the residual BNSF that must terminate this traffic" and thus does not recognize that the "[r]elatively *lower traffic densities* on the portions of the residual BNSF used by the cross-over traffic mean that the residual BNSF needs to receive relatively *higher divisions* per unit of traffic on each cross-over traffic movement than does the SARR in order for that movement to make the same contribution to overall fixed cost coverage on each of the two carriers."[137]

Even assuming arguendo that there is otherwise any validity to BNSF's stated "need" and fundamental objective, DARA's application is wholly defective and can lead to anomalous results because it focuses on only a single additional cost factor -- density -- and ignores all others. BNSF's assertions completely ignore the fact that the OTRR is being constructed in current dollars. To illustrate the absurdity of BNSF's analysis, consider that the gross investment per route mile on BNSF as of December 31, 2002 was million[138] per route mile, whereas Otter Tail in this

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137 See BNSF Reply Evidence at III.A-82 and III.A-87.

138 BNSF 2002 Total Road investment from R-1 Schedule 352B divided by BNSF 2002 miles of road from R-1 Schedule 700. See Otter Tail Rebuttal electronic workpaper "R-1 Schedule.pdf."

Rebuttal has calculated that the OTRR has a gross investment per route mile of $2.017 million.[139] Proper application of BNSF's DARA procedure should thus result in an increased allocation of revenues to the SARR because of its substantially higher capital costs.[140]

A fourth failing of DARA is that it measures density in terms of gross tons. Thus, it is designed to exaggerate the revenue need of the residual incumbent because a low-density line may generate more revenue per mile than a high density line. Non-coal traffic carried by the residual incumbent may very well be higher rated and thus better able than coal to make a contribution to joint and common costs.

Fifth, DARA imposes on the SARR a revenue sharing rule that the incumbent itself is not required to utilize with other carriers, which prejudices the SARR's opportunity to earn as high a profit as possible. Thus, DARA has the same effect as an entry barrier on the SARR, because it denies other profit making strategies to the SARR.

Finally, DARA has little credibility because BNSF has not put any actual rate division data into evidence to support it. While BNSF has provided some data to comply with discovery requests, it has not analyzed that data to see if actual divisions provide extra revenue per ton for low density lines. Nor has BNSF presented data on the actual contribution (measured as the rate division in excess of DVC) made by the cross-over traffic. The consequence is that the railroad has shied away from presenting the only evidence that could confirm whether revenue sharing based on mileage would disadvantage it vis-a-vis current market practices. This also applies to a comparison of

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139 See Otter Tail Rebuttal electronic workpaper "OTRR Construction Rebuttal.xls." As a basis of comparison, BNSF claims on Reply a value of $3.475 million per route mile for the OTRR. The resulting return per route mile assuming a pretax cost of capital of 13.7% i er route mile on BNSF, $0.276 per route mile on the OTRR per Otter Tail, and $0.476 per route mile on the OTRR per BNSF.

140 BNSF's approach does not calculate variable costs for the OTRR at all, but instead calculates variable costs for different segments of its own system.

DARA with current market practices. Actual data on market divisions are an important source of information that should be provided whenever rate divisions are at issue, for they provide a way to test the railroad's claim that there are other factors besides mileage that affect divisions.

iii. Use Of Actual Interline Revenue Divisions is Appropriate Where Actual Data are Available

In support of its sponsorship of DARA, BNSF claims that the market-based method is biased in favor of the complaining shipper. As support for this statement BNSF opines that the OTRR's aggregate divisions on cross-over traffic on a per ton-mile basis grossly exceed those of the residual BNSF.[141] However, this is not a function of any inherent bias in the methodology. Rather, it is simply a function of the traffic characteristics of the OTRR traffic group. One can find many examples in this case where the market-based divisions produce a higher division on cross-over traffic on a per ton-mile basis for the residual BNSF than for the OTRR. For example, revenues for

For this movement, the OTRR rate per ton-mile is 9.56 mills and the residual BNSF rate per ton-mile is 16.51 mills. In fact, there are 41.9 million tons of coal on the OTRR where the mill rate for the residual BNSF is greater than the mill rate for the OTRR using Otter Tail's market-based coal revenue divisions.[142] In other words, 23.2% of all OTRR coal traffic is more profitable to the residual BNSF than it is to OTRR on a ton-mile basis.

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141 See BNSF Reply at III.A-66 to III.A-67.

142 See Otter Tail Rebuttal electronic workpaper "Otter Tail Railroad Coal Traffic Forecast rebuttal.xls" at worksheet "2002 SAC Moves" cells BI9 and BI10.

Revenue divisions between carriers on actual interline movements provide the basis for the most realistic estimate of divisions on hypothetical interline movements. This is because the relationship that exists between real world interline partners is market-driven and the same market forces would apply to the formation of revenue division agreements between BNSF and OTRR.

Implicit in real world market division data is allowance for the coverage of both carriers' attributable costs. Both Otter Tail and BNSF have based their forecast of through rates for coal movements on the application of a market rate, based on the universally accepted fact that implicit in those market-rates is the allowance for cost coverage. If the Board accepts in this case, as it has in prior cases, the use of market-based rates in the calculation of forecasted through movement revenues, then it would be illogical for the Board to reject market-based revenue divisions on the grounds that those divisions do not allow for the same cost coverage.

(a) Otter Tail's Calculation of Market-Based Revenue Divisions Provide the Best Estimate of Divisions that Would be Attained by OTRR in the Real World

BNSF is critical of Otter Tail's application of regression equations to BNSF revenue divisions data produced in discovery. BNSF identifies six (6) alleged deficiencies in Otter Tail's regression analyses, with its specific criticism focused almost exclusively on one of the three regression analyses Otter Tail included in its Opening Evidence.[143] BNSF concludes that the analyses should be collectively rejected by the Board. BNSF's criticism of Otter Tail's analyses is as follows: 1) Otter Tail relied on unreliably small sample sizes; 2) Otter Tail relied on unjustified stratification of the data provided by BNSF; 3) Otter Tail relied on data points in developing its regression that

[143] See BNSF Reply at III.A-67, "the majority of this section addresses Otter Tail's regression for coal movements on which BNSF's share of the movement is less than 200 miles."

are not representative of SARR coal traffic; 4) Otter Tail failed to test all relevant independent variables that would logically affect the value of the dependent variable; 5) Otter Tail relied on regression analyses to predict values outside the relevant range; and 6) Otter Tail used an inappropriate functional form in its analyses.[144] Otter Tail rebuts each of these points separately below, and in so doing, proves each criticism to be no more than diversion and incorrect allegations used by BNSF to run from its own data, which clearly demonstrates that there is a well defined relationship between percent of haul and revenue received for interline movements.

BNSF is critical of Otter Tail for relying on a small number of data points in its regression analyses. There are two major problems with BNSF's argument. The first is that Otter Tail relied on all of the data BNSF provided in discovery that met the criteria established for the movement groups for which available data were regressed. By refusing to provide the data in discovery required to facilitate a more sophisticated economic analysis, BNSF guaranteed itself the opportunity to criticize OTP for evaluating small amounts of data ("unreliably small sample sizes"). Nevertheless, despite BNSF's purposely imposed data limitations, OTP was able to produce creditable estimates of crossover divisions using generally accepted statistical methods. The lack of data provided by BNSF is reflected in the variances, standard deviations and confidence intervals.

The second problem is that BNSF misconstrues what each data point included in the regression analyses represents. BNSF incorrectly states that, "Otter Tail's less than 200-mile regression uses only 5 data points..."[145] Otter Tail's workpapers provided in support of Opening Exhibit III-A-6 plainly demonstrate that the regression in question is based on data from 3,334 separate waybills.[146]

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144 See BNSF Reply at III.A-68.
145 See BNSF Reply at III.A-71.
146 See Otter Tail Opening Workpaper "inter01od.xls" at sheet "Coal-BN Org&Term" column AJ.

In other words, the five observations BNSF identifies actually include well over three thousand data points.

Another of BNSF's criticisms of the less than 200-mile regression analysis is that it includes an outlier data point that skews the results of the analysis.[147] BNSF asserts that this is especially problematic because of the small "sample" size used in the regression. However, BNSF does not disclose, as discussed above, that the five data points are representative of over 3,334 unique observations. Furthermore, the "outlier" that BNSF references represents 2,060 waybills. Otter Tail did, in fact, eliminate two (2) outlying data points in the less than 200-mile stratum that would have been very favorable to Otter Tail.[148]

BNSF is critical of Otter Tail's stratification of the data provided by BNSF for coal movements into two subsets. BNSF claims Otter Tail has "conveniently selected this stratum of shorter movements and generated such favorable results from this regression" in an attempt to manipulate the outcome of the regression analysis.[149] This is simply not the case.

Stratification is a very powerful statistical tool that can significantly reduce the data required to obtain creditable estimates. The rationale for any stratification is to divide the population into two or more groups that are significantly different with respect to one or more measurable characteristics. One such characteristic is market power. From many years of experience studying railroad economics, Otter Tail's experts have observed that the market power of a carrier is significantly different for coal traffic carried under 200 miles and coal traffic carried over 200 miles. In fact, UP noted a similar difference in railroad economies at the 200 mile stratification in FMC at 30. In the

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147 See BNSF Reply at III.A-73.
148 See Otter Tail Opening Workpaper "inter01od.xls" at sheet "Coal-BN Org&Term" column AJ.
149 See BNSF Reply at III.A-70.

extant case, the proof is in the results. There is a significant difference between the parameters of the linear regression using traffic under 200 miles and traffic over 200 miles. The constant (or fixed charge) and the slope of the two coal strata and the non-coal stratum are shown in Table III-A-5, below.

Table III-A-5
Differences in Regression
Coefficients Captured by Stratification

	Stratum (1)	Constant (a) (2)	Slope (b) (3)
1.	Coal < 200 miles	0.25053	0.77245
2.	Coal > 200 miles	0.16697	0.71040
3.	Non-Coal	0.16487	0.62819

The above table clearly demonstrates the differences that are identified and isolated by the stratification of the data.

BNSF is critical of the regression coefficients calculated by Otter Tail. In particular, BNSF takes issue with the constant (a coefficient) produced in regression analysis of the first data stratum (less than 200-mile coal moves). Specifically, BNSF states that, "Taken on its face, Otter Tail's regression on coal movements using the subset of data reflecting BNSF's share of the through movements as less than 200 miles is irrational – suggesting that the SARR should receive a minimum of 25 percent of the revenue even if it performs no line-haul service."[150] In the first place, this claim is vacuous. A constant in a linear regression of the type used by Otter Tail is a fixed charge that occurs only when the x variable is greater then zero ($x > 0$). Otter Tail never claimed

[150] See BNSF Reply at III.A-65.

revenue for movements where they moved zero miles. In addition, when taken in context of the Board's most recent coal rate reasonableness decision in Duke/NS, the regression results are right in line with the Board's preferred methodology in that case. In Duke/NS, the Board adopted a Modified Straight-Mileage Prorate methodology ("MSP"). "Under that approach, revenue from cross-over traffic is allocated based on the total mileage hauled by the SARR and the residual carrier, while retaining a 100-mile additive for originating or terminating the traffic."[151]

Using BNSF's own simple example demonstrates that Otter Tail's results are consistent with those applied by the Board in Duke/NS. Assume there is a 200 mile coal movement for which the SARR originates the move and interchanges the traffic to the residual incumbent at the mine spur. In this example, the residual incumbent would move the coal train from the mine spur to the destination (200 miles) and terminate the movement. Under the Board's MSP approach, the SARR would receive credit for 100 miles because it originated the movement. The residual incumbent would receive credit for 300 miles because it moved the traffic 200 miles and terminated the traffic (100). The result would be that the SARR would receive 25% (100/400) of the revenue for originating the traffic, even though it performed de minimus line-haul service.

Another criticism of Otter Tail's regression analysis offered by BNSF is that it is unreliable because the results from the regression are not applied back to the universe from which the sample data were drawn.[152] It would be an impossibility to draw samples from the universe to which the results in this case are to be applied. This is because the interline movements to which the results are being applied do not exist in the real world. If they did, there would be no reason to perform the

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151 See Duke at page 24.
152 See BNSF Reply at III.A-71 to III.A-72.

study because we would already know the answer. The interline movements at issue are the hypothetical cross-over traffic created by the SARR in this proceeding.

BNSF specifically criticized Otter Tail's regression analysis for coal movements under 200 miles because it is allegedly reliant on irrelevant data. Specifically, BNSF states that, "Four of the five movements... are not unit coal train movements, and therefore do not reflect either real world BNSF or hypothetical OTRR PRB operations. Furthermore, *none* of the five data points in the under 200-mile stratum is a BNSF originated coal movement from the Powder River Basin." (Emphasis in original).[153] To emphasize the point, BNSF likens the use of this data to "predicting average precipitation in Wyoming by performing a regression analysis on the weather patterns in Alabama."[154] Not only is BNSF's argument fatally flawed, its use of simile to illustrate its point is overreaching, at best. The movements used in the less than 200-mile stratum represent the only data provided by BNSF where BNSF's length of haul on an interline movement was less than 200 miles. As discussed above, coal movements under 200 miles are different in nature than coal movements over 200 miles. The negotiations between two rail carriers on interline revenue divisions for coal movements are not dependent on the size of individual shipments to be moved, either in theory or in practice. Negotiating railroads will try to maximize their share of revenues in any divisions agreement. Any difference in costs between moving single or multiple carloads of coal and moving unit trainloads will be incurred by both participating railroads, so the revenue divisions will boil down to the same issue, namely, who holds relatively more market power. A more accurate comparison than the one BNSF chose would be to compare the application of Otter Tail's under 200-

153 See BNSF Reply at III.A-71.
154 See BNSF Reply at III.A-71.

mile regression formula on PRB movements to predicting average miles per gallon achieved by a car driving on a road in Wyoming by performing a regression analysis on cars of the same make and model driving on similar roads in Alabama. In short, Otter Tail used the most appropriate data available.

Another criticism of Otter Tail's regression analysis raised by BNSF is that it is flawed because it "failed to include in its analysis or to test any independent variable other than mileage, despite the fact that there are several such variables that logically would affect the revenue division for real world interline movements of unit train coal."[155] In the first place, it is general industry knowledge that rail revenue divisions begin with an assessment of each of the participating carriers relative length of haul, as discussed below in section III-A-3-c-vi. Second, multivariate analyses requires data as requested by Otter Tail in discovery which was significantly more data than was actually provided by BNSF. The data made available was sufficient only for a univariate analysis.

Finally, BNSF criticizes Otter Tail for using a linear functional form in its regression analysis. Here again BNSF claims that the "ludicrous results" (i.e. the 25 % fixed charge for originating a movement) attained by the less than 200-mile regression demonstrate that the linear regression form is inappropriate for the data set in question. As shown above, the regression results for the stratum in question mirror the modified mileage prorate method endorsed by the Board in every case since McCarty Farms for short haul movements.

As part of its critique of Otter Tail's use of linear regression, BNSF claims that, "one would expect the divisions percentage to approach zero as the length of haul approaches zero, particularly

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[155] See BNSF Reply at III.A-74.

on unit train coal shipments where cost to originate these shipments is relatively low."[156] At best this statement is self-serving and at worst it is extremely misleading. First, BNSF offers absolutely no evidence to support this statement (most certainly because none exists). Second, it directly contradicts every Board decision on the issue since McCarty Farms, when the BN ***introduced*** the concept of awarding terminal carriers for originating or terminating a movement explicitly for the purpose of covering the high costs associated with terminal operations relative to line-haul movement.[157]

The linear model with a constant term

$$y = a + bx$$

is a realistic representation of the relationship between the revenue received as a percentage of the division of total revenue ("y") and the miles moved as a percentage of the total miles ("x"). The constant ("a") represents the fixed charge for origination/termination of the move and reflects the market power of the BNSF. The slope of the line ("b") represents the change in percentage of revenue for a given change in the mileage percentage ("x") and also reflects the market power of the BNSF. Contrary to the BNSF Reply statement that "...Otter Tail's regression results are nothing more than a statistically manipulated mileage prorate," the linear regression reflects the market power of BNSF in the estimation of the parameters in the model separately for each stratum. The combination of the linear model with stratification reflects market power. The data provided was best utilized by stratification and linear regression.

In addition to its objections to the data Otter Tail relied upon and functional form of Otter Tail's

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156 See BNSF Reply at III.A-76.
157 See e.g. McCarty Farms at 472.

regression, BNSF is also critical of Otter Tail's application of the regression results to the OTRR traffic group revenues. First, BNSF is critical of Otter Tail's application of the under 200-mile regression results to movements whose characteristics lie "well outside the relevant range of the observed data reflected in the five data points." BNSF cites various economic and statistical literature in an attempt to discredit Otter Tail's use of BNSF divisions data. For example, BNSF describes the difference between interpolation and extrapolation, and faults Otter Tail for using the latter in its application of regression results.[158] Here again, BNSF criticizes Otter Tail for using the data BNSF provided in discovery, which is demonstratively exclusive of revenue divisions for known BNSF interline coal movements, as discussed in Section III-A-3.b. above.[159] Otter Tail relied on all of the divisions data provided by BNSF in discovery in its formulation of its market-divisions analysis and would have included data more representative of the OTRR traffic group had BNSF provided all its revenue divisions data for the time periods requested by Otter Tail.

As part of its critique of Otter Tail's application of its under 200-mile regression analysis, BNSF has calculated and presented a graph[160] of the confidence interval that applies only to point forecasts. Otter Tail has verified this calculation and graph, but BNSF's conclusion that "Otter Tail's under 200-mile regression would not be reliable as a predictor of revenue divisions" only considers a one time use of this regression. In fact this regression is used to compute 310 separate estimates of division in the under 200-mile coal stratum.[147]

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158 See BNSF Reply at III.A-79.

159 For example, BNSF failed to provide revenue divisions for the movement of coal to Otter Tail's Hoot Lake plant in discovery in response to RFP 48, and again refused to produce the divisions in response to Otter Tail's Sixth Request for Workpapers on October 31, 2003, included in Otter Tail's Rebuttal workpaper Vol. III, p. 6506.

160 See BNSF Reply at III.A-80.

147 Results from similar regressions are used on over 200-mile coal and non-coal traffic, 94 and 7,985 times, respectively.

In presenting this criticism, BNSF ignored the Central Limit Theorem, which accounts for a significant reduction in the variance of the overall results, compared to only one forecast.[148] It is true that the variances of the intermediate components of Otter Tail's calculations affect the final result, but the most important confidence interval is that of the final result. Otter Tail demonstrates in Exhibit III-A-14 that BNSF's failure to incorporate the Central Limit Theorem completely undermines its criticisms of Otter Tail's confidence intervals.

Application of the Central Limit Theorem to the regression analyses in the extant case demonstrates that the small sample size and resulting large confidence intervals for a point estimate of single (one time) application of the regression estimates have no significant impact on the final result because Otter Tail has applied these estimates repeatedly in each of the three strata. This fact enables Otter Tail to use the variance reducing power of the Central Limit Theorem. The efficacy of the Otter Tail methods of estimating its divisions from crossover traffic is shown by the 95% confidence interval on the final result:

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It is important to emphasize once again that BNSF's lengthy criticism of Otter Tail's regression analyses is largely focused on the under 200-mile coal movement stratum and scarcely even mentions the other two regression analyses.

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[148] BNSF completely ignored all passages related to the Central Limit Theorem in the very texts they cited in their critique of Otter Tail's regression analysis. See excerpts from Greene, William H., *Econometric Analysis, Fifth Ed.*, Prentice Hall, New Jersey (2003) pp. 908-913 and Studenmund, A. H., *Using Econometrics: A Practical Guide, Fourth Ed.*, Addison Wesley Longman, Boston (2001) pp. 93-95 included in Otter Tail's Rebuttal Workpapers at Vol. III, pp. 5597 to 5607.

[149] See Otter Tail Rebuttal Exhibit III.A-14, p. 10.

iv. Use Of the MMP Methodology is Appropriate in This Proceeding

BNSF claims that the MMP method, employed by Otter Tail where relevant divisions data was not provided, is biased in favor of the complaining shipper. This position is curious since it was BNSF's predecessor who proffered the use of MMP to determine a SARR's division of revenue on cross-over traffic in the first place. As discussed by Otter Tail's Witness Weishaar below, the MMP methodology is the best alternative to real world division data because it mirrors the methodology used by railroads when they negotiate revenue divisions in the real world.

v. Otter Tail's Revenue Division Methodology More Than Covers The Residual BNSF's Attributable Costs

BNSF intentionally misrepresents Otter Tail's position regarding application of its revenue division methodology. In Opening, Otter Tail demonstrated that the residual incumbent would handle the cross-over traffic because the divisions produced by Otter Tail's methodology for the residual incumbent would exceed the residual incumbent's attributable costs of serving this traffic. BNSF does not disagree with this conclusion, but it states "Otter Tail appears to have taken the position that the Board's statement regarding coverage of attributable costs in PPL would entitle the stand-alone railroad to all net revenues (contribution) after the residual incumbent's directly attributable (i.e., variable costs) for the cross-over traffic movements."[150] BNSF also states that "[t]he Board's more recent formulation in TMPA indicates that Otter Tail's aggressive interpretation is wrong, because the Board recognized in this decision that "[t]he revenue each carrier receives should.... make some contribution to its unattributable costs."[151] Otter Tail has not taken the position espoused by BNSF. Rather, it has applied a market-based revenue division methodology for

[150] See BNSF Reply at III.A-139.
[151] See BNSF Reply at III.A-139.

determining divisions as the Board has indicated is the preferred method for estimating divisions beginning with McCarty Farms, and including PPL and TMPA.

Specifically, in Opening, Otter Tail did not claim contributions above the residual BNSF's attributable costs for OTRR. It merely demonstrated, within the context of PPL, that the divisions produced for the residual incumbent using the market-based division method exceed BNSF's attributable costs for each and every movement.[152] BNSF's interpretation that Otter Tail has set the residual BNSF's divisions equal to its attributable costs and retained all revenues above BNSF's attributable cost is a disingenuous attempt to mislead the Board into believing that Otter Tail has not followed its described method or that its method somehow favors the complainant.

A review of Otter Tail's Opening evidence clearly demonstrates that the divisions for the residual incumbent produced by Otter Tail's revenue division methodology yields contribution in excess of the residual BNSF's attributable cost of $918 million in the base year.[153]

vi. The Best Way to Approximate SARR Revenue Divisions is to Apply BNSF's Typical Percentage Division for Actual Movements to Comparable SARR Movements of the Same Commodities and The MMP Methodology Is The Best Way To Estimate Real World Divisions In The Absence Of Actual Data

For the first time in a rate case, BNSF has provided revenue division data for actual interline movements of various commodities. While BNSF did not provide revenue division data for every interline movement on its system, it did provide data for movements of many of the commodities that traverse the OTRR, including coal. Otter Tail analyzed the data and calculated the typical revenue split, by commodity and movement characteristics, between interline carriers based on the

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152 See Otter Tail Opening at pp. III-A-28 to III-A-29 and Otter Tail electronic workpapers in Part III-A, folder "DVC" for a complete discussion of Otter Tail's method for demonstrating that the division for the residual incumbent substantially exceeds its attributable costs and thereby provides a contribution to its unattributable costs. See also Otter Tail's Rebuttal electronic workpaper "Residual BNSF contribution.xls".

153 See Otter Tail Opening electronic workpaper "Residual BNSF contribution.xls,", column B, Line 5.

relative length of haul of each of the participating carriers. In cases where no relevant market-specific data was available for analysis, because BNSF did not provide real-world revenue divisions for every commodity that moves over the OTRR, Otter Tail applied the MMP methodology to estimate revenue divisions.[154]

As discussed above, BNSF has chosen to ignore its own revenue division data in its calculation of revenue divisions between the SARR and the residual incumbent and has instead put forth a division calculation methodology based not on actual market observations, but on a model that has never been used by any major railroad in real-world revenue division negotiations. Having failed to rely on the real-world revenue division data it produced in this case in its own revenue division analysis, BNSF should be precluded from opposing Otter Tail's use of the data to calculate typical market-based revenue divisions for the various OTRR commodities.

Otter Tail has requested Mr. David Weishaar, the former head of coal marketing for the former Chicago and North Western Railway Company ("CNW"), to review 1) BNSF's DARA procedure, and 2) the commodity-specific market divisions ("market division analysis") plus MMP divisions used by Otter Tail, and to comment on how the various methods relate to how divisions are handled in the real world. While at CNW, Mr. Weishaar negotiated division and allowance arrangements for movements of coal as well as steel, scrap iron, and other commodities, where the CNW or Western Railroad Properties, Inc. ("WRPI") served as an originating, overhead, or delivering carrier. His experience where WRPI served as an originating carrier in the PRB is particularly relevant to the issue of OTRR coal divisions, since the origins WRPI served were also served by the Burlington

[154] As stated by the Board in FMC, "Moreover, as discussed above, in withholding from FMC division information for all UP movements, UP denied FMC the opportunity to produce an alternative algorithm that might be more suitable for estimating market-based divisions for these movements. Thus, in the absence of any better evidence, we use FMC's modified mileage prorate method to estimate ORR divisions for these movements." See FMC at 30.

Northern Railroad ("BN") and WRPI was the originating carrier for PRB movements that were then forwarded to UP. Mr. Weishaar concludes that 1) the methodology that best reflects real-world revenue divisions is Otter Tail's market division analysis, and 2) in cases where market-based division data are not available, MMP is clearly more representative of real-world revenue setting than DARA.

Mr. Weishaar is unaware of *any* instances where variable costs or traffic densities played any role in determining divisions, and certainly one carrier does not attempt to ascertain either its connecting carrier's variable costs or its traffic densities for the purpose of negotiating divisions.[155] As stated earlier, BNSF cites no evidence that DARA has any real-world application. Indeed, in Mr. Weishaar's experience, relative mileages served as the basic starting point for negotiations for divisions, with additional compensation provided to carriers that served the origin and destination. CNW was thus normally able to obtain a divisions premium relative to a straight mileage on joint PRB movements with UP because WRPI served the PRB origins. This was true even though BN served those origins as well, and WRPI's connecting carrier, UP, had provided a substantial portion of the financing for CNW's entry into the PRB.

In the case of movements from WRPI-served origins to two large UP terminals, WRPI's share of the revenue was always significantly greater than its share of the haul, which did not exceed one quarter of the mileage. According to Mr. Weishaar, WRPI's experience as an originating carrier was hardly unique. In particular, CNW served as a bridge and destination carrier for steel movements originated at plants of U.S. Steel by the Elgin, Joliet & Eastern Railway Company ("EJ&E"). Mr. Weishaar recalls that the EJ&E's hauls were very short (less than 25 miles), yet the EJ&E

[155] Shippers are regularly told by railroads in rate cases that the railroads' management costs are entirely separate from their variable costs. It is thus very unlikely that the carriers would rely on regulatory variable costs for setting divisions.

commanded a substantial premium that was highly disproportionate to the length of the haul. These revenue splits reflect the necessity for originating and terminating carriers to recover terminal costs. Both the market division analysis and the MMP method reflect this real-world occurrence.

Mr. Weishaar has considerable experience with the market division methodology, where the originating carrier receives a premium for originating the move in addition to a per-mile rate for its portion of the shipment, in the context of the origins served by the OTRR, which either were served by WRPI or are in the same region as origins served by WRPI. Mr. Weishaar has concluded that the approach mirrors how revenue divisions are negotiated in the real-world and does not overstate the overall division results that the OTRR would likely obtain in such circumstances. This should come as no surprise as actual revenue division data provides the foundation for the market division model.

In addition, Mr. Weishaar has considerable experience with the MMP methodology, where each carrier gets a one block credit for each 100 miles, or portion thereof, that it handles the shipment, and one additional block is assigned for loading and another is assigned for unloading, in the context of general freight moving in overhead service over the OTRR. Mr. Weishaar has concluded that the approach is not dissimilar from how revenue divisions are negotiated in the real-world and does not understate the overall divisions that the residual BNSF or any originating or terminating carrier would likely obtain in such circumstances.

Thus, there is every reason to accept Otter Tail's market division and MMP methodologies and to reject BNSF's DARA procedure, particularly given BNSF's failure to rely on its own revenue division data to support its cost-based density adjustment proposal.

d. Other - Projected Revenues For Non-Issue Traffic

In this Section of its Rebuttal, Otter Tail addresses BNSF's wide-ranging criticism of Otter Tail's approach for the calculation of projected revenues for non-issue traffic on the OTRR. Projected revenues for the OTRR are best addressed by focusing on four (4) distinct time periods: (1) for all OTRR coal shippers, the 2003 time period; (2) for each OTRR coal shipper that currently transports coal under a contract with BNSF, the time period from 2004 through the termination date of that customer's contract,[156] (3) for all OTRR coal shippers, the time period from the contract termination date through the end of the DCF period (i.e., 2021), and (4) for all OTRR non-coal shippers, the time period from 2004 through 2021. Each of these time periods is discussed more fully below.

i. 2003 Projected Coal Revenues

On Opening, Otter Tail calculates projected 2003 revenues for coal traffic handled by the OTRR by utilizing BNSF's own revenue forecast for the entire year.[157] On Reply BNSF accepts Otter Tail's approach for calculating 2003 revenues. As a result, Otter Tail and BNSF are in agreement concerning the approach for calculating 2002 to 2003 projected revenues for coal traffic handled by the OTRR. However, BNSF disagrees with the volume of coal transported on the OTRR in 2003 and with the methodology utilized to divide revenues between carriers for reasons discussed above. Therefore, there is a difference of $179 million in 2003 SARR coal revenue between OTRR and BNSF's calculations.

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156 Certain customers of the OTRR currently transport coal in common carrier service. BNSF revises Otter Tail's approach to projecting revenues for two of these customers (TMPA and WTU). Otter Tail's response to each of BNSF's revisions is discussed later in Section III-A-3.d.iv. of this Rebuttal Evidence.

157 See Otter Tail Opening at III.A-24.

ii. Revenues Through The Terms Of Existing Coal Contracts

On Opening, Otter Tail projects the revenues from 2004 to the end of each OTRR coal customer's existing transportation contract term by forecasting the change in each customer's specific transportation contract adjustment mechanism.[158] On Reply, BNSF accepts Otter Tail's methodology but claims that the implementation of this methodology is flawed in the following respects: (1) Otter Tail utilizes a dated DRI-WEFA forecast of the RCAF;[159] and (2) Otter Tail failed to incorporate the correct rate and escalation terms from 9 contracts.

On Rebuttal, Otter Tail utilizes the December 2003 DRI-WEFA forecast of the RCAF-U and RCAF-A used by BNSF in Reply. In addition, Otter Tail revises its calculation of projected revenues through the term of existing contracts to incorporate changes suggested by BNSF where BNSF has pointed out legitimate errors in Otter Tail's application of the contract escalation mechanism used in Opening. Specifically, BNSF cites instances where Otter Tail uses incorrect escalation

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158 See Otter Tail Opening at III-A-24.
159 See BNSF Reply at III.A-103.
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Additionally, BNSF states that 9 destinations within OTRR's traffic base are classified incorrectly.[161] Each of these 9 destinations is addressed below:

- ant: BNSF states that this destination should be classified as a competitive destination. Otter Tail has incorporated this change into its Rebuttal evidence.[162]
- ant: BNSF states that this destination should be classified as a competitive destination. Otter Tail rejects this change because UP is the only railroad serving this destination.
- t: BNSF states that this destination should be classified as a competitive destination. Otter Tail rejects this change because KCS is the only railroad serving this destination.
- Plant: BNSF states that this destination should be classified as a competitive destination. Otter Tail rejects this change because KCS is the only railroad serving this destination.
- BNSF states that this destination should be classified as a competitive destination. Otter Tail rejects this change because UP is the only railroad serving this destination.
- Plant: BNSF states that this destination should be classified as a competitive destination. Otter Tail rejects this change because UP is the only railroad serving this destination.
- t: BNSF states that this destination should be classified as a competitive destination. Otter Tail rejects this change because KCS is the only railroad serving this destination.
- : BNSF states that this destination should be classified as a competitive destination. Otter Tail rejects this change because UP is the only railroad serving this destination.
- BNSF states that this destination should be classified as a competitive destination. Otter Tail rejects this change because UP is the only railroad serving this destination.

161 See BNSF Reply at III.A-111 through III.A-112.

162 See Otter Tail's Rebuttal Electronic Workpaper "Otter Tail Railroad Coal Traffic rebuttal.xls" at worksheet "2002 to 2021 tonnage," row 10.

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Otter Tail inadvertently identified a movement by) Superior, WI as competitive. Since 100% of the coal for this movement originates at Decker Mine, this movement should be designated as captive. This change also has been incorporated into Otter Tail's Rebuttal evidence.[163]

iii. Revenues After Expiration Of Existing Coal Contracts

The basic difference between Otter Tail's and BNSF's projections of revenue for the OTRR is the calculation of projected revenues between the expiration of each current OTRR coal shipper's contract and the end of the DCF period. On Opening, Otter Tail calculated revenues for the members of OTRR traffic group after the expiration of their existing contract in one of two ways. For traffic that is captive, Otter Tail assumed that the existing contract rate equals the expired contract rate and that future rate changes are based on the projected average annual change produced by the expired contract rate adjustment mechanism.[164] For traffic that is competitive, i.e. with access to two or more railroads at origin and destination, Otter Tail assumed that the contract rate at the termination of the existing contract equals a competitive market rate. Projected rates for competitive traffic are equal to this competitive market rate as adjusted.[165] Otter Tail develops a competitive market rate for transportation from BNSF contracts signed in 2002 and 2003 and adjusts this competitive market rate by a competitive marketplace rate adjustment that was also developed from BNSF contracts signed in 2002 and 2003.[166] Otter Tail's projection of revenues upon the expiration

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163 BNSF is the only option for transportation service from Decker, MT to Superior Dock, WI. See Otter Tail Rebuttal Electronic Workpaper "Otter Tail Railroad Coal Traffic rebuttal.xls" at worksheet "2003 Coal O-D Pair," row 313. Otter Tail incorporates this change in Otter Tail's Rebuttal Electronic Workpaper "Otter Tail Railroad Coal Traffic Forecast rebuttal.xls" at worksheet "2002-2021 Tonnage," row 61 and worksheet "Competitive Coal Rates" where this contract has been removed from the Competive Market Rate Analysis.

164 See Otter Tail Opening at III-A-24.

165 Id.

166 See Otter Tail Opening at III-A-24.

of existing contracts is both reasonable and conservative. Furthermore, the use of a market rate for the calculation of the through movement rate is consistent with Otter Tail's methodology of calculating revenue divisions based on market divisions.

On Reply, BNSF criticizes Otter Tail's methodology for determining projected revenues for OTRR traffic after the expiration of existing contracts.[167] Specifically, BNSF challenges Otter Tail's projection of revenue growth and claims that Otter Tail's methodology is flawed for the following three reasons: (1) Otter Tail incorrectly assumes that the rate for captive plants at the end of an existing contract equals the expired contract rate;[168] (2) Otter Tail's calculation of the competitive marketplace rate for competitively served plants at the end of an existing contract is flawed;[169] and (3) Otter Tail's methodology for forecasting revenues after contracts expire is inconsistent, outdated and overstates the future revenues that BNSF is likely to achieve.[170]

(a) The New Rate For Captive Plants

On Opening, Otter Tail assumed that the new transportation rates for expired contracts to captive OTRR destinations are equal to the last contract rate under the expired contract.[171] This assumption is based on the guidance provided by the Board in its WPL decision in which the Board itself "assumed that the rate trends reflected in the existing contracts will continue."[172] On Reply, BNSF argues that there is better evidence on which to make an assumption about the new transportation rates for expired contracts.[173] Not surprisingly, BNSF's "better evidence" purportedly demonstrates that rate trends for its captive plants are in the downward direction.[174]

167 See BNSF Reply at III.A-110.
168 Id. at III.A-112.
169 Id. at III.A-114.
170 Id. at III.A-124 through III.A-125.
171 See Otter Tail Opening at III-A-24.
172 See WPL, page 28 and Otter Tail Opening at III-A-24.
173 See BNSF Reply at III.A-112 through III.A-113.
174 See BNSF Reply at III.A-113.

BNSF rejects Otter Tail's Board-approved methodology for determining new contract rates for expired contracts to captive plants. Under the BNSF proposed alternate approach, when a contract for a captive plant expires the rate is re-adjusted to a level based on the average reduction realized by a select group of captive shippers who have recently signed new coal transportation contracts with BNSF.[175]

In the first place, any representation by BNSF that the rates it will charge its captive coal shippers upon the expiration of their current contracts will go down is flatly inconsistent with (1) BNSF's own representations in its Opening and Reply evidence in this proceeding that such rates must substantially increase in the future for BNSF to become revenue adequate; and (2) BNSF's actual pricing policies in the past three years, which are specifically directed toward increasing revenues from all of BNSF's coal shippers, both captive and those with competition. As to the first point, Otter Tail refers the Board to BNSF's Opening Evidence, in which BNSF claimed that the only way it can become revenue adequate is to substantially increase the rates of demand inelastic coal shippers because additional revenues are not available from non-coal customers.[176] As for the second point, BNSF cannot credibly assert that there is a downward trend in the rates it charges its captive coal customers when the rates of at least four (4) of such customers have increased in just the past two years as their contracts have expired.[177] Some of these rate increases have been substantial. These facts expose as disingenuous any representations by BNSF that it expects that the rates of its captive coal customers will go down in the future years of the OTRR's DCF model.

A brief review of the facilities included in BNSF's study demonstrates that BNSF is only telling half the story. Specifically, BNSF has included only a subset of its universe of captive coal

175 See BNSF Reply Exhibit III.A-14.
176 See BNSF Opening at I.A-6.
177 See Otter Tail Rebuttal electronic workpaper "Otter Tail Captive Rate Analysis.xls."

customers whose contracts have recently expired while ignoring a substantial group of captive shippers whose recently expired contract rates have been replaced by exorbitant tariff rates.[178] To base a claim that there is a trend for all captive coal shippers to receive rate reductions ignores the most recent history on the subject, which is contradictory to BNSF's claimed trend, to say the least. When captive shippers with recently expired contracts moving coal under tariff rates are included in BNSF's study, the average rate increases by for captive shippers after contract expiration.[179]

BNSF offers yet another made-for-litigation study that again purports to confirm that the historical trend of declining new contract rates for captive destinations applies to all of BNSF's customers.[180] Once again, the BNSF study suggests that BNSF's captive customers receive substantially more economic consideration at the conclusion of their current contracts than do customers with competitive alternatives, a result that is counter-intuitive and economically illogical. This same type of study has been rejected by the Board in the past because it has been proven to be flawed and unreliable evidence.[181] In addition, the Board has noted in past decisions that it is reluctant to rely on forecasts prepared specifically for litigation by BNSF.[182] The reason the Board has rejected similar contract analysis of rate changes in the past is because a simple analysis of the absolute change in average rates ignores the important changes in the terms of the expired and current contracts or the extent to which the rate reductions are "...due to competitive circumstances or some other reason (e.g., changed service requirements, such as a switch to shipper-supplied cars that would lower the carrier's costs)."[183]

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178 See BNSF Reply electronic workpaper "Renewal Rate for Sole Served Destinations.xls" at worksheet "ctrates."
179 For some shippers, the tariff rates after contract expiration increased as much as . See Otter Tail electronic workpaper "Otter Tail Captive Rate Analysis.xls."
180 See BNSF Reply at III.A-113.
181 See, for example, Wisconsin at 28.
182 See TMPA at 29.
183 See, Wisconsin at 28.

Otter Tail's methodology assumes that economic dimensions remain constant from the end of the existing contract to the end of the DCF model. Stated differently, by assuming that the new contract rate equals the expired contract rate, Otter Tail also assumes that there is no change in contract terms and conditions or in the operations governing the movement of coal to captive destinations. This approach is conservative, under the circumstances.

BNSF has targeted its captive coal customers as a source for additional revenues, and in fact, the rates paid by numerous captive coal shippers have increased in the past few years. BNSF nevertheless attempts to argue that such rates will decline based on its claims that a contract rate study prepared for this litigation shows a trend of decreasing rates at contract expiration for shipments to captive plants.[184] This made-for-litigation argument and the studies upon which it is based are not grounds for the Board to disregard its established precedent on this issue. For this reason, BNSF's alternative methodology for determining the new contract rates at the expiration of a contract for captive shippers should be rejected.

BNSF's methodology should be rejected because it ignores the relative demand elasticities among the customers in the OTRR traffic group. This position is completely contrary to the positions taken in BNSF's Opening Evidence and elsewhere in its Reply Evidence.[185] The Board has repeatedly expressed the view that a proper application of CMP and Guidelines should endeavor to reflect demand elasticities in determining revenues, to the extent practicable.[186] Otter Tail's methodology distinguishes the captive nature of the traffic in question and reflects the market dynamics of varying demand by using the products of those dynamics (the customer's actual contracts) as the forecast driver. The BNSF method assumes no distinctions between OTRR

184 See BNSF Reply at III.A-114.
185 See BNSF Opening at II-A-60
186 See FMC at 27-30; Coal Rate Guidelines, 1 I.C.C. 2d at 544.

customer's demand elasticities. In this respect, the BNSF's method is inconsistent with CMP and inferior to Otter Tail's approach. On Rebuttal, Otter Tail continues to utilize the methodology it relied upon in its Opening Evidence to calculate the new contract rates for captive customers after contract expiration.

(b) The Competitive Marketplace Rate For Competitive Plants

On Opening, Otter Tail assumes that the new transportation rates for expired contracts to competitive OTRR destinations is equal to the lesser of the expired contract rate or the competitive marketplace rate.[187] Otter Tail calculates the competitive marketplace rate at a 1Q03 level based on all of the BNSF contracts signed after the initial operating date of the OTRR that were provided by BNSF in discovery in this proceeding (i.e., 2002-2003). This competitive marketplace rate is then adjusted annually based on a competitive marketplace adjustment mechanism developed from the same BNSF competitive contracts signed in 2002-2003.[188] After the competitive contract expires during the term of the DCF, the adjusted competitive marketplace rate for each year after contract expiration is applied to forecast OTRR volume for the remaining DCF model life.[189]

On Reply, BNSF accepts Otter Tail's "general approach of replacing the rate to a competitive plant at the contract's expiration with a competitive marketplace rate" but makes adjustments "to correct flaws in Otter Tail's approach."[190] Specifically, BNSF makes the following three (3) changes to Otter Tail's general approach: (1) BNSF changes the 1Q03 competitive marketplace rate; (2) BNSF changes the competitive marketplace adjustment mechanism, and (3) BNSF calculates

187 See Otter Tail Opening at III.A-24 to III.A-25.
188 Id.
189 Unless the expired competitive contract rate is lower than the market rate, in which case the expired rate is escalated by the market rate adjustor.
190 See BNSF Reply at III.A-115.

separate market rates for shippers using shipper-owned cars and shippers using railroad-owned cars.[191]

(i) Changes to the 1Q03 Competitive Rate

BNSF states that several changes should be made to the 1Q03 competitive market rate. Each of these criticisms are addressed below:

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[191] Id. BNSF also incorporates the June 2003 DRI-WEFA RCAF forecast. Otter Tail accepts the BNSF's use of the June 2003 DRI-WEFA RCAF forecast.
[192] See BNSF Reply III.A-117.
[193] See Otter Tail's Rebuttal Electronic Workpaper "Otter Tail Railroad Coal Traffic rebuttal.xls" at worksheet "Competitive Coal Rates," row 16.
[194] See BNSF Reply III.A-118.
[195] See BNSF Reply III.A-119.
[196] See BNSF Reply III.A-123.
[197] Contract BNSF-C-12336 was not provided until September 29, 2003 over 3 months after opening evidence filing of June 13, 2003.

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(c) Application of the Competitive Marketplace Rate

BNSF argues that the competitive rate is applied incorrectly for several movements that expired after 2009.[201] Each of BNSF's criticisms are addressed below:

- BNSF states that the "competitive marketplace" rate is not applied to this contract on its expiration in 2010. Otter Tail applies the competitive rate in Rebuttal.

- BNSF states that the "competitive marketplace" rate is not applied to this contract on its expiration in 2012. Otter Tail applies the competition rate in Rebuttal.

- BNSF states that the "competitive marketplace" rate is not applied to this contract on its expiration in 2011. Otter Tail rejects this criticism because, as discussed above, a captive movement.

198 See BNSF Reply III.A-123.
199 See Otter Tail's Rebuttal Electronic Workpaper "Otter Tail Railroad Coal Traffic rebuttal.xls" at worksheet "Competitive Coal Rates," row 22.
200 See BNSF Reply III.A-123.
201 See BNSF Reply III.A-116.

- BNSF states that the "competitive marketplace" rate is not applied to this contract on its expiration in 2013. Otter Tail rejects this criticism because, as discussed above, s a captive movement.

(d) Reliance on Railroad-Car Rates

On Reply, BNSF criticizes the use of railroad-car rates in the Competitive Market Rate Analysis because the application of a railroad-car rate to shipments moving in private cars would overstate revenue. BNSF calculates two competitive market rates, one for railroad-car movements and one for shipper-car movements.[202] Otter Tail revises its calculation and application of the competitive market rate in Rebuttal to incorporate BNSF's separation between shipper provided rail car rates and railroad provided rail car rates. Otter Tail has calculated a competitive market rate for shipper-car movements and a competitive market rate for railroad-car movements. The relevant rates are applied to OTRR competitive movements based on the percentage of cars moving in shipper-owned and railroad-owned cars in 2002.[203]

iv. Rate Adjustments After Contract Expiration

Otter Tail forecasts rate changes after the expiration of OTRR customers' contracts using two distinct methodologies depending on whether the traffic is captive or competitive. Otter Tail forecasts rates for captive plants after contract expiration based on the average annual change produced by the expired contract rate adjustment mechanism.[204] Otter Tail forecasts rates for competitive plants after contract expiration based on the competitive market rate per ton-mile multiplied by the actual mileage for the competitive movement.[205] The 1Q03 competitive market

202 See BNSF Reply III.A-120 and BNSF Reply electronic workpaper "BNSF Revised Competitive Mill Table.xls"
203 See Otter Tail's Rebuttal Electronic Workpaper "Otter Tail Railroad Coal Traffic rebuttal.xls" at worksheet "2002 to 2021 Tonnage," rows 120 and 121.
204 See Otter Tail Opening Evidence at III-A-24.
205 Id.

rate per ton-mile is adjusted annually based on the annual average change produced by the composite competitive market rate adjustment mechanism.[206]

For captive movements, as stated previously, Otter Tail assumed that the new transportation rates for expired contracts to captive OTRR destinations are equal to the last contract rate under the expired contract. BNSF criticizes the use of some contract mechanisms after contract expiration.[207] These are discussed individually below:

cha [183]

206 Id. The composite competitive market rate adjustment mechanism was developed from the BNSF competitive contracts signed in 2002 and 2003 that were also used to develop the 1Q03 competitive market rate. See Otter Tail Opening Evidence at III-A-24.

207 See BNSF Reply III.A-126.

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v. Revenues For Common Carrier Movements

On Opening, Otter Tail calculates revenues for common carrier movements for the period from 2002 through 2003 using BNSF's traffic tapes and BNSF's revenue forecasts. For the period from 2004 through 2021, Otter Tail calculates revenues for common carrier movements based on the tariff rate adjustment mechanism or 100% of the annual change in the RCAF-U.[185]

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184 See Otter Tail Opening electronic workpaper "Otter Tail Coal Traffic Forecast.xls," worksheet "index," rows 68 and 69. This adjustment mechanism corresponds to the adjustment mechanism found in contract BNSF-C-12307at page BNSF/OTP-40208.

185 See Otter Tail Opening electronic workpaper "Otter Tail Coal Traffic Forecastc.xls" at worksheet "2002-2021 Tonnage."

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On Reply, BNSF modifies the calculation of revenues for two common carrier movements that are included in the OTRR Traffic. Specifically the BNSF makes the following two (2) revisions to Otter Tail's calculation of revenues for common carrier traffic: (1) BNSF eliminates the movement and (2) BNSF applies a rate escalation of 100% of RCAF-U to .[186]

Otter Tail rejects the exclusion of traffic for the reason set forth in Section III.A-1.b. Otter Tail incorporates the Board's prescribed rates for the novement in Rebuttal. Otter Tail accepts the adjustment mechanism of 100% RCAF-U for J and has incorporated the change in Rebuttal.[187]

vi. 2003 to 2021 Projected Non-Coal Revenues

Otter Tail forecasted revenues for non-coal movements by applying the rate of change forecast in BNSF's Long Range Plan for relevant Commodity or Business Group over the 1998-2007 time period.[188] BNSF has accepted this methodology in Reply and thus Otter Tail and BNSF are in agreement on the revenue forecasting methodology for non-coal traffic.

vii. Summary

Otter Tail has followed standard STB procedures in calculating its traffic volumes and associated revenues. Where appropriate, Otter Tail has made adjustments based on the information provided by BNSF on Reply, although very few adjustments are warranted and the resulting changes are relatively modest. Otter Tail's revised traffic and revenues for the OTRR are summarized in Rebuttal Exhibit III-A-10 to this Narrative. The following table shows, for each year, (1) Otter Tail's

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186 See BNSF Reply II.A-132.

187 See Otter Tail's Rebuttal Electronic Workpaper "Otter Tail Railroad Coal Traffic rebuttal.xls" at worksheet "2002 rev contracts," row 59 and row 78

188 See Otter Tail Opening at III-A-25.

revenues in Opening, (2) BNSF's revenues on Reply, (3) Otter Tail's revenues on Rebuttal, and (4) the difference between Otter Tail's revenues on Opening and Rebuttal.

Table III-A-6
OTRR Revenues -- Comparison of Otter Tail and BNSF - Base Case

	Year (1)	Otter Tail Opening Revenue[1] (2)	BNSF Reply Revenue[2] (3)	Otter Tail Rebuttal Revenue[3] (4)
1.	2002	876,779,708	364,345,961	832,243,188
2.	2003	873,443,952	362,512,748	828,736,724
3.	2004	890,232,543	363,936,253	837,031,318
4.	2005	910,717,311	363,761,415	853,634,186
5.	2006	943,961,335	377,825,193	882,718,840
6.	2007	980,174,010	373,296,744	915,059,656
7.	2008	1,012,210,181	387,542,269	943,142,602
8.	2009	1,042,466,250	399,894,965	969,073,876
9.	2010	1,077,004,465	415,704,996	967,201,750
10.	2011	1,106,639,010	426,183,291	1,022,427,659
11.	2012	1,134,197,096	430,488,004	1,045,762,043
12.	2013	1,160,131,096	438,212,977	1,067,798,291
13.	2014	1,184,473,573	441,679,478	1,088,155,241
14.	2015	1,209,240,748	449,768,446	1,108,807,543
15.	2016	1,235,516,001	458,193,547	1,130,730,376
16.	2017	1,262,747,319	466,732,584	1,153,402,700
17.	2018	1,289,234,198	475,177,106	1,175,290,303
18.	2019	1,316,713,562	483,862,242	1,197,963,347
19.	2020	1,344,905,279	492,778,461	1,221,138,796
20.	2021	1,371,931,977	500,738,750	1,243,185,980

1 Source: Otter Tail Opening Exhibit III-A-5.
2 Source: BNSF Reply Table III-A-18 Page III.A-134.
3 Source: Otter Tail Rebuttal Exhibit III-A-12.

For the reasons stated supra, the Board should adopt Otter Tail's traffic and revenue calculations as the best evidence of record.

4. OTHER

a. PPL Cross-Subsidy Analysis

In its Opening Evidence at page Ill-A-26, Otter Tail performed a threshold cross-subsidy analysis to demonstrate that all segments of the OTRR are self-sustaining and do not contain any of the impermissible cross-subsidies that the Board rejected in PPL. BNSF does not challenge Otter Tail's analysis. Rather, it avers that, because Otter Tail's "analysis relies on its own revenue and cost evidence[,] [i]t is quite possible that after revenues and costs have been adjusted by the Board as a result of its assessment of the parties' evidence," an impermissible cross-subsidy might exist.[189] BNSF then presents its own analysis, using its revenue and cost assumptions to show there is an impermissible cross-subsidy on the OTRR.[190] But this analysis is meaningless, because using BNSF's costs and revenues, the entire OTRR is revenue-deficient. The only significance to BNSF's discussion of Otter Tail's PPL analysis is BNSF's concession that Otter Tail has presented a stand-alone railroad that does not have an impermissible cross-subsidy.

In response to BNSF's claim that Otter Tail's cross-subsidy analysis was too limited, Otter Tail performed a cross-subsidy test on the segments east of Glendive, Montana in its Rebuttal for both its base case traffic group and its alternative case traffic group. The results of the cross-subsidy analyses, labeled "Campbell West" and "Glendive East," show that the revenues attributable to the traffic moving on each distinct segment exceed the attributable cost as defined by the Board in PPL on a cumulative basis over the twenty-year DCF period. Thus, no impermissible cross-subsidy exists for these subsets of traffic.[191]

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189 See BNSF Reply at III-A-136.
190 Id. at III.A-137 to III.A-138.
191 See Otter Tail's Rebuttal electronic workpapers in Part III-H, folders "Campbell West" and "Glendive East."

b. The Revenue Allocated to the Residual Incumbent Exceeds Attributable Costs of Cross-Over Movements

BNSF asserts that Otter Tail has not calculated attributable costs correctly.[192] Otter Tail's analysis equates "attributable costs" with "directly variable costs," which Otter Tail has measured as "the line haul cost of lading, applicable switching cost and station clerical cost for the residual BNSF portion of each of the cross-over moves."[193] BNSF points out, however, that directly variable costs encompass the costs included by Otter Tail, which are the "presumptive cost floor," plus any other costs that are proven to vary directly with the particular movement.[194] While BNSF is correct, it has not presented any evidence of additional costs that vary directly with the OTRR' s cross-over movements. Once Otter Tail demonstrated that the revenue attributed to the residual BNSF on cross-over movement was sufficient at least to cover the presumptive cost floor (which is the minimum definition of "directly variable costs"), the burden of proof shifted to BNSF to demonstrate both (a) that there are additional costs that vary directly with the cross-over movements, and (b) that the addition of those costs to Otter Tail's calculation of attributable costs exceeds the cross-over revenue attributed to the residual BNSF. BNSF has not even attempted to do this. Thus, Otter Tail's evidence of unattributable costs is the only and best evidence of record.

5. ALTERNATIVE CASE VOLUMES AND REVENUES

In Otter Tail's original Opening evidence and in its base case in Rebuttal, Otter Tail excluded some Powder River Basin coal movements from its traffic group because the traffic did not meet one of Otter Tail's selection criteria. Specifically, if coal traffic did not move on the OTRR for at least 1.1 percent of the total movement miles it was excluded from OTRR's traffic group. This exclusion

192 See BNSF Reply at III.A-140.
193 See OTP Opening Evidence at III.A-29.
194 See BNSF Reply at III.A-140.

was required because of the revenue division methodology used by Otter Tail in its base case. In Otter Tail's alternative case, submitted in its Supplemental Opening evidence, Otter Tail used the Board's MSP methodology to allocate revenues on cross-over SARR traffic. Therefore, Otter Tail's base case selection criteria that resulted in the exclusion of certain PRB coal is not applicable to its base case traffic group. As a result, Otter Tail's alternative case traffic group is different from its base case traffic group.

a. OTRR Historic and Projected Traffic Volumes

Otter Tail added 31.7 million base year tons of PRB originated coal to its alternative traffic group, in accordance with its use of the Board's MSP revenue division methodology in its alternative case. Otter Tail's alternative case coal volume forecast has not changed from its Supplemental Opening evidence. Otter Tail's non-coal base year and forecasted traffic volumes are identical in its base and alternative cases. Table III-A-7 below compares Otter Tail's Supplemental Opening and Rebuttal OTRR traffic forecasts for Otter Tail's alternative SARR to the alternative case OTRR traffic forecast presented by BNSF in its Supplemental Reply evidence.

Table III-A-7

OTRR Volumes -- Comparison of Otter Tail and BNSF - Alternative Case

	Year (1)	Otter Tail Supplemental Opening Volume [1] (2)	BNSF Supplemental Reply Volume [2] (3)	Otter Tail Rebuttal Alternative Volume [3] (4)
1.	2002	237,334,025	135,110,908	233,259,576
2.	2003	236,598,692	132,335,632	232,524,243
3.	2004	238,544,108	133,550,625	234,469,659
4.	2005	240,473,200	133,970,267	236,398,751
5.	2006	244,531,940	136,733,371	240,457,491
6.	2007	249,260,092	138,514,952	245,185,643
7.	2008	252,682,105	140,816,593	248,607,656
8.	2009	255,231,086	142,387,886	251,156,637
9.	2010	259,192,624	144,798,371	255,118,175
10.	2011	261,128,342	145,849,563	257,053,893
11.	2012	262,452,589	146,314,677	258,378,140
12.	2013	263,239,479	146,546,623	259,165,030
13.	2014	263,660,755	146,790,901	259,586,306
14.	2015	264,050,163	147,016,701	259,975,714
15.	2016	264,611,030	147,335,221	260,536,581
16.	2017	265,248,286	147,665,996	261,173,837
17.	2018	265,618,223	147,852,831	261,543,775
18.	2019	266,044,688	148,091,720	261,970,239
19.	2020	266,450,430	148,309,859	262,375,981
20.	2021	266,546,104	148,357,198	262,471,655

1 Source: Otter Tail Supplemental Opening electronic workpapers "Otter Tail Railroad Coal Traffic Forecast - Supplemental.xls" and "ottertailsac02x - MSP.xls".

2 Source: BNSF Supplemental Reply Exhibit III.A-14.

3 Source: Otter Tail Rebuttal electronic workpapers "Otter Tail Railroad Coal Traffic Forecast rebuttal alt.xls" and "ottertailsac02x rebuttal alt.xls".

b. OTRR Historic and Projected Traffic Revenues

Otter Tail continues to use the Board's MSP methodology to allocate revenues between the OTRR and the residual BNSF for cross-over traffic in its alternative case. BNSF used a modification of the Board's methodology in its SARR revenue calculation for Otter Tail's alternative traffic group in its Supplemental Reply evidence.

Table III-A-8 below compares Otter Tail's Supplemental Opening and Rebuttal OTRR revenue forecasts for Otter Tail's alternative SARR to the alternative case OTRR revenue forecast presented by BNSF in its Supplemental Reply evidence.

Table III-A-8

OTRR Revenues -- Comparison of Otter Tail and BNSF - Alternative Case

	Year	Otter Tail Supplemental Opening Revenue [1]	BNSF Supplemental Reply Revenue [2]	Otter Tail Rebuttal Alternative Revenue [3]
	(1)	(2)	(3)	(4)
1.	2002	$724,681,910	$430,380,352	$675,125,108
2.	2003	724,348,104	430,363,148	674,691,160
3.	2004	727,716,819	431,927,474	677,674,894
4.	2005	742,494,602	432,032,217	692,233,349
5.	2006	766,461,929	447,343,805	715,968,971
6.	2007	792,493,811	442,839,142	741,767,876
7.	2008	815,452,325	458,400,052	764,518,430
8.	2009	836,037,462	472,062,889	784,920,583
9.	2010	860,661,037	489,525,206	809,355,522
10.	2011	881,727,450	501,190,636	830,257,391
11.	2012	901,112,647	506,675,704	849,431,132
12.	2013	918,738,994	515,413,255	867,276,780
13.	2014	934,851,389	519,751,161	883,216,637
14.	2015	951,198,829	528,903,560	899,390,491
15.	2016	968,487,123	538,428,883	916,501,792
16.	2017	986,311,863	548,062,941	934,146,470
17.	2018	1,003,611,851	557,602,257	951,268,029
18.	2019	1,021,566,301	567,411,565	969,041,143
19.	2020	1,040,049,962	577,444,059	987,334,554
20.	2021	1,057,579,353	586,513,689	1,004,684,103

1 Source: Otter Tail Supplemental Opening electronic workpapers "Otter Tail Railroad Coal Traffic Forecast - Supplemental.xls" and "ottertailsac02x - MSP.xls".

2 Source: BNSF Supplemental Reply Exhibit III.A-14.

3 Source: Otter Tail Rebuttal electronic workpapers "Otter Tail Railroad Coal Traffic Forecast rebuttal alt.xls" and "ottertailsac02x rebuttal alt.xls".

III-B
STAND-ALONE RAILROAD SYSTEM

III-B STAND-ALONE RAILROAD SYSTEM

BNSF begins its Section III-B Reply Narrative by stating:

> "BNSF accepts the basic configuration of the OTRR physical network. However, Otter Tail used flawed methodologies and incorrect assumptions to estimate the amount of mainline and yard capacity required by the OTRR."

BNSF's statement leads the reader to conclude that while BNSF accepts some of Otter Tail's assumptions, the OTRR facility plan designed by Otter Tail is significantly flawed. Contrary to BNSF's assertion, it accepted virtually all of Otter Tail's facility plan for the OTRR, with only a few exceptions.[1] The portions of Otter Tail facility plan that BNSF accepts include:

1. The basic configuration of the OTRR physical network;[2]
2. BNSF indicates that, of 1,284.00 route miles, Otter Tail has understated the required miles by a total of 1.84 miles;[3]
3. The track miles, except for BNSF's claim that Otter Tail has overstated the required track miles by 3.8 miles;[4]
4. Otter Tail's assumptions regarding the weight and type of rail to be used in mainline, passing track and yard tracks;[5]
5. The configuration of the OTRR from Gillette to Glendive and from Fargo to Big Stone;[6]

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1 As discussed in Section I above, the BNSF presented Supplemental Reply evidence where it incorrectly excluded a large amount of overhead traffic and removed the Glendive to Snowden branch line. For purposes of stand-alone system comparisons, Otter Tail compares its opening evidence to BNSF's Reply.

2 See BNSF Reply at III.B-1.

3 See BNSF Reply at III.B-1.

4 See BNSF Reply at III.B-4, and BNSF Reply electronic file "IIIB Miles Table__Errata.xls".

5 See BNSF Reply at III.B-5.

6 See BNSF Reply at III.B-6.

6. The track configuration on all branch lines, except Snowden;[7]

7. The track configuration at the Campbell, Moran Junction, Terry, Fargo and Benson yards;[8]

8. The configuration of the Donkey Creek yard, except for the locomotive shop and car repair facility.[9]

9. The speed limits established for the OTRR, except in certain towns where BNSF claims that speed restrictions exist;[10]

10. The signals and communications system designed for the OTRR;[11] and

11. The use of trackage rights over the

As stated previously, BNSF accepts Otter Tail's configuration of the OTRR between Gillette and Glendive and between Fargo and Big Stone. Then, after spending nine pages of narrative disparaging the computer "string model" utilized by Otter Tail's primary expert, L. E. Peabody & Associates, Inc., to model the road capacity for the OTRR,[13] BNSF uses the RTC model to test the capacity of Otter Tail's design between Snowden, Glendive and Fargo. Based on its Reply RTC model simulation, the only change BNSF makes to Otter Tail's configuration of this portion of the OTRR is to add a crossover track near Snowden and a fueling track at Mandan.[14] Stated differently,

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7 See BNSF Reply at III.B-34.
8 See BNSF Reply at III.B-35.
9 See BNSF Reply at III.B-35.
10 See BNSF Reply at III.B-54.
11 See BNSF Reply at III.B-54-55.
12 See BNSF Reply at III.B-55.
13 See BNSF Reply at pp. III.B-10-18. In Sections III-B-4 and III-C-2 of this Rebuttal, Otter Tail responds in detail to BNSF's criticisms of the string model and demonstrates that it is more than adequate as a tool for performing the analyses required to develop and present an acceptable SAC model. That being said, no computer model is perfect and no opening stand-alone cost presentation has not required some modification.
14 See BNSF Reply at III-B-29. In its Supplemental Reply, BNSF excluded 168.86 miles of passing track between the Glendive and Fargo, and completely removed the Glendive - Snowden Branch. See BNSF Reply electronic file "IIIF2 OTRR Grading_Errata.xls," and BNSF Supplemental Reply electronic file "IIIF2 OTRR Grading_Supplemental.xls".

with the addition of a single crossover track and an 8,000 foot fueling track, BNSF also accepts Otter Tail's design configuration for the Snowden, Glendive to Fargo portion of the OTRR. This segment combined with the Gillette to Glendive and Fargo to Big Stone segments comprise 603.44 of OTRR's route miles, or 47 percent of the OTRR system.

BNSF does make substantial changes to the 27 mile segment of the OTRR between Converse Junction and Reno Junction. BNSF makes these changes, however, not because Otter Tail didn't properly design the OTRR in this segment, but instead because BNSF's Reply evidence eliminated 54 million tons of coal traffic moving over this portion of the OTRR, and its Supplemental Reply removed 84.5 million tons. As demonstrated in Section III-A-1-b, BNSF's elimination of this traffic is flawed as a matter of fact, economic theory, and law.

BNSF's analysis of the OTRR facility plan assumes its reduced tonnages. BNSF did not perform an analysis of the OTRR facility plan including Otter Tail's proposed traffic group and tonnages. BNSF based its version of the OTRR on a much smaller traffic group than did Otter Tail.[15] However, BNSF presented no arguments as to what changes in road property or operating plan or operating expenses would be necessary to account for the traffic group Otter Tail presented in Opening Evidence. In fact, BNSF never even raised this issue. Thus, should the Board accept most or all of the disputed traffic group tonnages, then BNSF has offered no alternative OTRR investment or operating evidence that would apply.

In a similar situation in the WPL case, UP asserted that future SARR tonnages would be 22% lower than those modeled by the complainant.[16] In presenting its SARR road property investment, UP claimed that even more investment would be required if the Board sided with WPL's estimate

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15 See BNSF Reply at III.A-54.
16 See WPL at 15.

of future tonnages.[17] However, as the Board noted, UP never specified what this additional investment would be.[18] While the Board sided entirely with WPL on the issue of future tonnages, the Board tellingly never again mentioned UP's assertion that additional investment would be required. Obviously, since UP had offered no evidence on the issue, the Board could not simply guess what UP's view would be. As an example of this point, the Board in WPL consistently rejected UP's generalized arguments that more track would be needed because UP failed to specify the extent, size and use of the additional track.[19] Instead, in each situation, the Board followed WPL's evidence.

1. Route and Mileage

As stated previously, BNSF's Reply added only 1.84 route miles, or 0.1 percent of the total route miles to the OTRR system. On Opening, Otter Tail included 1060.43 miles for the mainline of the OTRR, comprised of 1049.91 miles of constructed track.

Otter Tail also included 229.28 miles for the seven branch lines and 4.81 miles for the OTRR-owned portions of various mine spurs. In total, the OTRR consists of 1284.0 miles of constructed track and 10.52 miles of trackage rights. In its Supplemental Opening, Otter Tail added an additional 8.23 miles of track in the OTRR's Orin division. Otter Tail's mileage figures were based on BNSF track charts and timetables provided in discovery.[20]

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17 See WPL at 61.
18 See WPL at 61 (n. 121).
19 See WPL at 65 and 66.
20 See Otter Tail Opening Workpaper Vol. III, pp. 2439-2464 and electronic workpaper file "Timetables and Track Charts.zip".

On Reply, BNSF included 1061.39 miles for the mainline of the OTRR, comprised of 1050.80 miles of constructed track and 10.52 miles of trackage rights. BNSF included 227.50 miles for the seven branch lines and 7.49 miles for the OTRR-owned portions of various mine spurs. BNSF included .94 more miles of main line track, 1.78 less miles for the branch lines, and 2.68 more miles for the mine spurs.[21] As discussed below, Otter Tail accepts a limited number of BNSF's mileage modifications.

The 1.84 route miles BNSF's Reply added to the OTRR are comprised of eighteen minor additions or deletions of the route miles proposed by Otter Tail. Of these eighteen proposed changes, only four are warranted. Otter Tail rejects BNSF's remaining fourteen proposed changes as either unnecessary or not supported.

The four BNSF proposed changes that are warranted result in a net decrease of 0.16 route miles for the OTRR system. These changes include:

1. The addition of 0.44 miles for the east leg of the Donkey Creek Wye which Otter Tail included in its stick diagram, but inadvertently omitted from its track mileage calculation in its Opening evidence;

2. The addition of 0.50 miles for the west leg of the Moran Jct. Wye, which Otter Tail included in its stick diagram, but inadvertently omitted from its track mileage calculation in its Opening evidence;

3. The deletion of 1.54 miles for the Sarpy Jct. to Kuehn branch. This overstatement in Otter Tail's Opening evidence resulted from misreading the track charts; and

4. The addition of 0.44 miles for the Energy origin on the Big Sky Branch. This understatement in Otter Tail's Opening evidence resulted from misreading the track charts and mine schematics.

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[21] See BNSF Reply at Table III.B-2.

The fourteen BNSF proposed Reply evidence changes that are not warranted include:

1. The deletion of 0.7 miles for the Reno Branch. BNSF improperly removed the south leg of the wye in conjunction with its inappropriate deletion of southbound traffic;

2. The deletion of 0.06 miles for Eagle Butte Jct. to Eagle Butte mine lead. This mine lead is shown on BNSF's track charts;

3. The deletion of 0.06 miles for Eagle Butte Jct. to Rawhide mine lead. This mine lead is shown on BNSF's track charts;

4. The addition of 0.10 miles for Ft. Union mine spur. Otter Tail's mileage is supported by the mine schematic;

5. The addition of 0.06 miles for Caballo mine spur. Otter Tail's mileage is supported by both the mine schematic and BNSF's track charts;

6. The addition of 2.16 miles for Belle Ayr mine spur. BNSF added these as route miles, Otter Tail had already included this track as double track miles;

7. The deletion of 0.01 miles for Cordero mine spur. Otter Tail's mileage is supported by the mine schematic;

8. The addition of 0.13 miles for Coal Creek mine spur. Otter Tail's mileage is supported by the mine schematic;

9. The deletion of 0.06 miles for the North Antelope mine spur. BNSF improperly removed the south leg of the wye in conjunction with its inappropriate deletion of southbound traffic;

10. The addition of 0.06 miles for the Rochelle mine spur. This is the same line as the North Antelope spur which Otter Tail included in its Opening evidence;

11. The addition of 0.06 miles for Antelope mine spur. Neither BNSF's track charts nor the mine schematic shows that this track is owned by BNSF;

12. The deletion of 0.25 miles for the Black Thunder mine spur. Otter Tail's mileage is supported by BNSF's track charts;

13. The addition of 0.08 miles for the West Decker mine spur. Otter Tail's mileage is supported by the mine schematic; and

14. The addition of 0.46 miles for an east wye leg at Snowden, MT towards Minot, ND. The OTRR interchanges 167,000 tons of coal annually to BNSF in Snowden that move east. This small amount of tonnage does not warrant the construction of this wye track.

Based on the above, Otter Tail has reduced the total OTRR route miles by 0.16 miles in its base and alternative cases, yielding total base case route miles of 1,283.84 miles.

2. Track Miles and Weight of Track

As stated previously, BNSF's Reply has decreased Otter Tail's track miles for the OTRR by a total of 3.76 track miles or 0.2 percent of the total OTRR track miles. As designed by Otter Tail's experts, the OTRR main line consists primarily of single track, in combination with numerous sections of second main track and passing sidings. As configured by Otter Tail in its Opening Errata, the system consists of 1284.0 miles of single track, 398.88 miles of second main track and passing sidings, 77.78 miles of yard tracks, and 10.68 miles of other tracks (primarily bad-order set-out tracks).[22] In its supplemental Opening, Otter Tail included an additional 8 miles of second main track and 0.23 miles of other track. The parties disagree with respect to track miles and yard/set-out tracks.

a. Main Track Miles

As described in Section III-A of this Rebuttal Narrative, BNSF eliminated a large portion of the southbound coal traffic originating at the Codero Mine and at the mines located south of Cordero. As a result of the elimination of this coal traffic, BNSF's Reply reduced the miles of second main track on this segment of the OTRR. According to BNSF's Reply Narrative that addresses the output of its RTC model, BNSF has reduced the track miles in this section of the OTRR by a total of 23.04

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[22] See Otter Tail Opening at III-B-3, Exhibit III-B-1 and electronic workpaper "OTRR Grading 2001.xls", worksheet "IIIF Miles."

miles.[23] However, examination of BNSF's workpapers reveals that BNSF has actually reduced the track miles between Converse Junction and Donkey Creek by a total of 31.05 miles.[24] As fully addressed in Section III-A, supra, the elimination of southbound coal traffic originating at Cordero mine and mines south of Cordero is inappropriate. This traffic continues to be included in Otter Tail's base case and alternative case Rebuttal evidence and, as a result, Otter Tail's track configuration for this portion of the OTRR remains the same as in Opening and in Supplemental Opening.

In addition to the deletions of second main track, BNSF's Reply indicates that it added a crossover between the main tracks near Snowden and a fueling/interchange track near Mandan. No other mention is made of additional passing tracks or second main tracks in BNSF's Reply. Review of BNSF's workpapers reveal however, that BNSF has added 9.06 miles of passing track to the OTRR.[25] These additional track miles are not discussed or supported by BNSF and have not been included in Otter Tail's facility plan for the OTRR.[26]

The changes to the track miles discussed above are shown on the stick diagrams in Exhibit III-B-2 accompanying this Rebuttal evidence. Table III-B-4 below[27] compares the track miles presented by Otter Tail in Opening with the track miles added by the BNSF in its Reply evidence and the miles added by Otter Tail in its base case Rebuttal evidence.

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23 See BNSF Reply at III-B-31 and III-B-33.

24 Otter Tail's electronic workpaper "Mileage Comparison.xls" includes a comparison of the track miles by valuation section between Otter Tail's Opening Narrative and BNSF's Reply.

25 Id.

26 See, e.g. WPL at 70, where the Board rejected the additional track shown in defendant UP's workpapers because there is no explanation why the track is needed.

27 Table III-B-1 through Table III-B-3 were included in Otter Tail's June 13, 2003 Opening Narrative.

Table III-B-4
Comparison of OTRR Main Track Miles (Excluding Trackage Rights)

	Item	Otter Tail Opening	BNSF Reply Errata	Otter Tail Rebuttal	Difference[1]
	(1)	(2)	(3)	(4)	(5)
1.	Single-track miles[2/]	1,284.00	1285.84	1283.84	2.0
2.	Double-track/passing siding miles	398.88	374.29	398.89	(24.60)
3.	Total main track miles	1,682.88	1,660.13	1,682.73	(22.60)

1 Column (3) minus Column (4).
2 Equals total route miles (excluding trackage rights over RRVW track between Brushvale and E. Breckenridge, Minnesota.

The correct mainline track miles for the OTRR are as shown in Column (4) of Table III-B-4 above.

b. Branch Lines

Otter Tail and BNSF's Reply evidence agree that the OTRR has seven branch lines.[28] These include:

1. Reno Junction to Jacobs Junction – Reno Branch;
2. Campbell to Eagle Butte Junction – Eagle Butte Branch;
3. Dutch to Nerco Junction – Decker Branch;
4. Sarpy Junction to Absaloka – Kuehn Branch;
5. E. Nichols to Big Sky – Big Sky Branch;
6. Glendive to Snowden – Snowden Branch; and
7. Benson to Big Stone – Big Stone Branch.

28 In Supplemental Reply evidence, BNSF has excluded the Snowden Branch from its system.

BNSF's Reply also accepts the weight of rail for the branch line track posited by Otter Tail. BNSF states that the capacity needs (i.e., track configuration) of the Snowden Branch and the Eagle Butte Branch are discussed with the main line track mile section of its Reply.[29] Review of Section III-B-2-a of BNSF's Reply (i.e. the mainline track mile section) reveals that no mention is made of a change in track miles on either the Snowden Branch or the Eagle Butte Branch, yet a comparison of the track miles for these two branches included in Otter Tail's Opening Errata and BNSF's Reply shows that BNSF has added 0.44 track miles of second main track on the Snowden Branch and BNSF has added 0.18 track miles of second main track on the Eagle Butte Branch.

BNSF also states "BNSF accepts the track configuration and specifications posited by Otter Tail for the remaining Branch lines."[30] Review of BNSF workpapers again demonstrates that this statement is not correct. BNSF deleted 2.90 miles of second main track on the Reno Branch and has added 0.12 more second main track miles on the Decker Branch.[31] With the exception of the changes to the route miles discussed earlier, on Rebuttal, Otter Tail continues to utilize the branch line track mileage shown in its Opening evidence, and in its Supplemental Opening evidence.

c. Sidings

In order to conform with discussion in BNSF's Reply Narrative, the difference in passing sidings is discussed above under track miles.

d. Other Tracks

On Opening, Otter Tail provides for double main line track with crossovers to facilitate the traffic flow (to or from) the coal mines located between Caballo Junction and Cordero Junction and

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29 See BNSF Reply at III-B-34.
30 Id.
31 See BNSF Reply electronic file "Mileage Comparison.xls."

between Reno Junction and Bill.[32] On Reply, BNSF recommends the addition of a crossover track between the mainline tracks at MP 76.5 near Snowden.[33] Otter Tail's operating expert has reviewed BNSF's recommended addition of this crossover track and determined that it is not necessary for the efficient operation of traffic on this segment. As a result, Otter Tail does not make any changes to the crossover tracks for the OTRR that were utilized in Opening.

BNSF also indicates that two interchange locations posited by Otter Tail are incorrect. These include the interchange with BNSF at Fargo for traffic moving west on BNSF's Fargo to Minot line. BNSF points out that the actual interchange should take place at the CY Connector near West Fargo not in BNSF's Fargo yard. The second interchange location is the interchange between the OTRR and the RRVW, which Otter Tail locates in Fargo. BNSF points out that this interchange actually takes place at Casselton, ND, approximately 20 miles west of Fargo. Otter Tail accepts both of these changes and includes the required turnouts for both of these interchanges in Rebuttal.

3. YARD AND OTHER TRACK MILES

Table III-B-5 below compares the total miles of yard, set-out and other tracks for the OTRR as provided by Otter Tail on Opening, BNSF on Reply, and Otter Tail on Rebuttal.

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32 See Otter Tail Opening Exhibit III-B-1 (page 1).
33 See BNSF Reply at III-B-29.

Table III-B-5
Comparison of OTRR Yard and Other Track Miles

	Item (1)	Otter Tail Opening (2)	BNSF Reply (3)	Otter Tail Rebuttal (4)	Difference [1] (5)
1.	Yard track miles	77.78	82.95	86.13	3.18
2.	Set-out and other track miles	10.68	24.51	12.05	(12.46)
3.	Total yard, set-out and other track miles	88.46	107.46	98.18	(9.28)

[1] Column (4) - Column (3).

BNSF's Reply evidence agrees with the location and purpose of the eleven yards proposed by Otter Tail for the OTRR and states that it accepts the facilities as set out by Otter Tail for the Campbell, Moran Junction, Terry, Fargo and Benson yards.[34] In addition, BNSF's Reply accepts the basic track configuration and facility plan at each of the remaining six OTRR yards, with minor changes. Each of these six yards are discussed below.

a. Donkey Creek Yard

BNSF accepts the basic yard capacity proposed by Otter Tail for the Donkey Creek Yard except for the locomotive shop and servicing facilities and the car repair facilities.[35] Review of BNSF's stick diagram for the Donkey Creek yard reveals that BNSF's design for the "yard" tracks and the "spare yard" at Donkey Creek are identical to those proposed by Otter Tail. However, BNSF's proposed "wye" track at Donkey Creek is 2,640 feet with three turnouts compared with Otter Tail's 'wye' track that is 1,200 feet, also with three turnouts. Otter Tail agrees that the Donkey Creek wye track should be 2,640 feet and has added the additional 1,440 feet in its Rebuttal evidence.

[34] See BNSF Reply at III-B-35.
[35] See BNSF Reply at III-B-35.

BNSF's Reply argues that the Donkey Creek locomotive maintenance shop must be able to handle 12 locomotives at one time, that a third fueling platform should be added to the locomotive service tracks and that the car repair tracks should be designed to handle 16 bad order cars at one time.[36] BNSF adds a total of 3.81 miles of track to Donkey Creek Yard (including an unnecessary bypass track of 1.25 miles in length with ten turnouts) to facilitate this level of locomotive and car servicing. Even accepting BNSF's calculation of the number of locomotives or railcars that may need servicing or repairs at one time, the design proffered by Otter Tail in its Opening evidence has adequate capacity to meet these needs.

Otter Tail's design for the locomotive shop has capacity for 14 locomotives, six spots for inspections and "light" repairs, and 8 spots for "heavy" repairs, plus a double-ended "ready" track for holding an additional six locomotives. This provides capacity for 20 locomotives at any time, which is 8 locomotives greater than the capacity BNSF claims is required for the shop. The additional trackage proposed by BNSF is superflous to Otter Tail's requirements, and further, is even in excess of what BNSF itself claims is necessary. As discussed in Section III-F-7.a.i, infra, the level of train operations through Donkey Creek Yard do not support the need for a third fueling platform.

Otter Tail has designed its car repair track to handle running repairs. The 3,500 feet of car repair tracks, which includes two tracks to make "spot" repairs, plus four "ready" tracks, are sufficient to handle the 16 bad order cars per day assumed by BNSF. In addition to the rip tracks provided by Otter Tail, BNSF would have the OTRR construct a car repair shop. The OTRR leases

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[36] See BNSF Reply at III-B-38.

cars only through full service leases and is therefore responsible only for running repairs. As a result the car repair shop posited by BNSF is not necessary.[37]

In summary, the 3.81 miles of track BNSF's Reply adds to the Donkey Creek yard are not necessary. Otter Tail agrees that 1440 feet of track (0.27 miles) should be added to the "wye" track and has included this track in Rebuttal.

b. Glendive Yard

BNSF's Reply adds track to the Glendive yard for three reasons. First, BNSF states that the yard as designed by Otter Tail does not have sufficient capacity to handle the maximum number of trains that it is required to handle. Second, BNSF states that certain of the overhead general freight trains that BNSF routes between

[redacted]. BNSF argues that the OTRR must still perform the I&I switching service and proposes that it be performed at Glendive. Finally, BNSF makes the same revisions to the "wye" track and to the locomotive servicing and car repair track as it made to the Donkey Creek Yard. In aggregate, BNSF adds 10.1 miles for I&I switching and 2.9 additional miles of track for servicing locomotives and making car repairs to Otter Tail's configuration of the Glendive Yard.

i. Insufficient Capacity

BNSF's Reply incorrectly claims that insufficient capacity exists to handle the maximum required trains moving through Glendive Yard at one time. BNSF has provided identical yard trackage as Otter Tail, but added 2.9 miles of track to the locomotive servicing and car repair

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[37] Furthermore, despite BNSF's claims, the car repair track do not need to be enclosed. During Mr. McDonald's tenure at the C&NW, there were car repair tracks in cold weather locations, such as E. Minneapolis, MN, which were not enclosed.

operations, plus 10.1 miles of track for switching the I&I trains. The remainder of the yard proper, as designed by Otter Tail and accepted by BNSF, is the same. As discussed below, Otter Tail has provided ample capacity for its operations, and is fully capable of handling all the traffic operating in this yard.

ii. I&I Switching

Review of

As a result, Otter Tail, in the Rebuttal evidence, has added the required yard capacity to provide I&I switch service to these trains. However, Otter Tail has added this capacity at the Fargo Yard, not at Glendive as suggested by BNSF.

BNSF train files provided in discovery show that, for the period of January through December 2002,

This amounts to an average of less than trains per day. BNSF's train file also demonstrates that the I&I switching is generally

Further, based on the notes of the total number of cars on the trains being switched range from only cars per train. Based on these train sizes, the preponderance of switching on the number of trains actually switched, Otter Tail's operating expert redesigned the Fargo Yard to accommodate the I&I switching services for these trains, without creating interference to the interchange activities that take place at Fargo. The modifications to the Fargo Yard have added 6.7 miles of track and 22 turnouts to Otter Tail's Opening Narrative. Conversely, BNSF's Reply track design of I&I switching at Glendive Yard

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38 See Otter Tail Rebuttal electronic file "minot_trncl.xls," at worksheet "Days."
39 Id.

reflects an additional 10.1 miles of track, and would create an operational bottleneck on the lead tracks at each end of the yard.

iii. Additional Locomotive Servicing and Car Repair Facilities

BNSF's Reply added 2.9 miles of track to the Glendive Yard for locomotive servicing and car repair facilities, plus an additional 1440 feet of track in the "wye."[40] As with Donkey Creek, Otter Tail accepts the additional 1,440 feet of 'wye' track, but does not accept the additional locomotive and car tracks, as the Glendive Yard has adequate capacity to handle all of the required locomotive and car servicing needs. BNSF witnesses have added an unnecessary by-pass track for occasional, "light" movements for the servicing tracks at Glendive. Furthermore, their plan to switch the I&I trains at Glendive, which Otter Tail would do at Fargo, would conflict with every train entering and departing the yard. Otter Tail does not accept this by-pass track.

c. Converse Yard

As discussed previously, BNSF's Reply inappropriately eliminated from the OTRR all southbound coal traffic from the Cordero mine and mines south of Cordero. BNSF's elimination of this traffic reduces the amount of coal moving through Converse by 54 million tons of coal in the base year and, as a result, BNSF reduced the size of the Converse Yard. However, BNSF added fueling facilities at Converse Yard. As discussed in Section III-F-7.a.i., fueling facilities are not necessary to fuel the locomotives by truck. In Rebuttal, Otter Tail continues to move this coal traffic on the OTRR and it retains the size and configuration of the Converse Yard presented in Otter Tail's Opening.

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[40] BNSF's addition of this track is in direct contrast to its statement at page III.B-46 of its Reply that it accepts Otter Tail's proposed fueling and service tracks.

d. Dutch Yard

BNSF's Reply accepts Otter Tail's track configuration of the Dutch Yard, but adds a facility for fueling the helper locomotives by truck that are stationed at Dutch. As discussed in section III-F-7.a.i, no facilities are required to fuel the helper locomotives by truck.

e. Snowden Yard

BNSF accepts Otter Tail's configuration of the Snowden Yard with the exception that it added a 0.44 mile eastbound connecting track to accommodate traffic interchanged to BNSF at Snowden that moves east to Minot.[41] The OTRR interchanges only 167,297 tons of coal to BNSF at Snowden that moves east from Snowden in a total of 15 loaded trains in the base year.[42] Building the proposed eastbound connecting track is not operationally required and is therefore not economically rational for only 30 trains a year or approximately one train every other week. As these trains are operated in DP configuration, i.e., with locomotives at both ends of the train, the OTRR can simply deliver the train to BNSF by pulling through the westbound connector and the BNSF crew can then board what was the back end of the train when delivered by OTRR and then move in an eastbound direction.[43]

f. Mandan Interchange

BNSF's Reply accepts the track configuration at the Mandan Interchange, but contends that eastbound loaded coal trains being interchanged to BNSF at Fargo, if fueled at Glendive, will not have sufficient fuel to reach their destination and return to Glendive for refueling. As a result, BNSF

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41 See BNSF Reply at III.B-51. In its Supplemental Reply, BNSF removed the Snowden Yard.

42 See Otter Tail Opening electronic workpaper "Otter Tail Railroad Coal Traffic Forecast.xls."

43 The Board agrees that the use of a DP configuration can obviate the need for additional tracks to reposition locomotives. Duke-NS at 48-49. CP&L at 41.

adds an 8,000 foot fueling track and two fueling racks (one for the head end locomotives and one for the rear end locomotives) at Mandan.

BNSF's reasoning for fueling locomotives at Mandan is not rational. OTRR plans to fuel locomotives in this corridor when it services the locomotives at Glendive. By fueling locomotives at Glendive, the OTRR will provide BNSF with loaded coal trains at Fargo with 70 percent of their fuel capacity and with 60 percent of their fuel capacity at Benson.[44] Moreover, locomotive run-through agreements typically require that the receiving carrier return the locomotives with a like amount of fuel, or at least an amount sufficient to return to Glendive for refueling. If BNSF chooses to return a lesser amount of fuel in locomotives than OTRR delivers at interchange, it will create a monetary imbalance which must be reconciled. Of course this reconciliation can take place at other BNSF/Otter Tail interchanges, such as Converse and Donkey Creek where it may be more operationally convenient for one of the carriers to furnish the majority of fuel in that particular corridor.

Further, BNSF's Reply states at page III-B-52 that 10 loaded coal trains per day travel east from Glendive for interchange with BNSF that do not include any fueling facilities prior to return to Glendive Yard. Examination of BNSF workpapers supporting this statement lists 13 destinations. Based on the fuel capacity and fuel consumption rate of SD70 locomotives, nine of the thirteen trains have ample capacity to make the round trip from Glendive to destination and return.[45] As stated above, BNSF under the run-through agreement has the obligation to refuel these locomotives prior to returning them to the OTRR.

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44 See Otter Tail Rebuttal electronic workpaper "Glendive Fuel Capacity.xls."
45 Id.

For the above reasons, Otter Tail has not included a fueling track or fueling facilities at Mandan in its Rebuttal evidence.

g. Set-out and Other Tracks

All set out tracks on the OTRR are 600 feet and stub-ended.[46] When maintenance of way equipment needs to clear for trains or be stored for future use, these tracks contain sufficient space for the maintenance of way equipment and still leave room for bad order cars, should the need arise. Assuming 55 feet for the occasional bad order car, it leaves an ample 545 feet for maintenance of way equipment on each track. Otter Tail has placed its set-out tracks at each end side of a DED, and can use either or both of these tracks to store its maintenance of way equipment on a temporary basis. In the event it is necessary to set out a bad-order car while equipment is in the siding, good communication between train crews, dispatcher, and contractor will result in prompt removal of the repaired car.

BNSF asserts that a 1,400-foot maintenance-of-way track should be constructed as an "extension" for every other one of the 600-foot set-out tracks with another mainline turnout at the end (making it a double-ended track). BNSF further claims this is necessary in order to clear ballast and rail work trains.

Otter Tail disagrees with BNSF's reconfiguration of the set out tracks. The 600 foot set-out tracks provided by Otter Tail at each DED location provide ample capacity both for the occasional set-out of bad order cars and for the temporary storage of MOW equipment. (Hi-rail inspection vehicles and light MOW equipment can readily be taken off the track and thus will not need to occupy the set-out tracks.) Each of the 600-foot set-out tracks can accommodate, for example,

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[46] Otter Tail Opening at III.B-8.

several bad-order railcars and still have track space for MOW equipment. Further, ballast trains and rail trains are normally scheduled in advance and given priority to get the work done, and then return to the terminal. In any event, both ballast and rail work trains exceed the 2,000 feet in length (1,700 feet, clearance point to clearance point) for set-out tracks proposed by BNSF, rendering the additional 1,400 feet of track useless. Otter Tail has designed its set-out tracks for the purposes and uses intended, as stated in Opening evidence, all at 600 feet in length. If clearance for time-sensitive traffic is necessary, the infrequent work trains can occupy a passing siding in the same manner as other trains.[47]

4. OTHER

a. Otter Tail's String Program Remains The Best Evidence

At pages III.B-10 to III.B-42 of its Reply Narrative , BNSF makes several broad assertions regarding the supposed inadequacies of the data inputs and outputs from Otter Tail's string diagram model.[48] Specifically, BNSF claims that there are seven (7) major problems with Otter Tail's modeling of the OTRR: 1) the model is an unreliable tool that has been rejected by the STB in previous maximum reasonable rate cases, and must also be rejected here; 2) the modeling process is inefficient, manually intensive and prone to error; 3) the model does not produce intermediate files allowing for the reconciliation of service units; 4) the model's output contains numerous anomalies, including overloaded sidings and yards, and "T-Bone" train collisions, which shows that Otter Tail's model is inappropriate to use in determining stand-alone costs; 5) Otter Tail did not link empty trains and loaded trains at the origin mines, causing empty trains to wait for hours before loading, or to

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47 Set out tracks are also discussed in Section III-F-3.d.(ii)(b).

48 BNSF also makes several claims about supposed problems with the string diagram program itself in Section III.C of its Reply Narrative. Otter Tail addresses these supposed problems in Section III-C of this Rebuttal evidence.

completely disappear from the OTRR system all together; 6) Otter Tail's model omits some trains and causes others to dwell too long; and, 7) the OTRR operating period Otter Tail included in its simulation is too short, and not the correct period of the year to model.

In place of Otter Tail's modeling tool and methodology, BNSF attempted to model its version of the OTRR using the Rail Traffic Controller Model ("RTC model"), a software package developed by Berkeley Simulation Software, and purportedly used in capacity planning studies by most major U.S. railroads.[49] The RTC model is proprietary computer software developed by Berkeley Simulation Software which BNSF provided to Otter Tail on a laptop computer that contains the software and some of the files related to the analysis performed by BNSF's Mr. Wheeler.[50]

Moreover, instead of modeling the entire OTRR system, BNSF chose to model only two segments of the stand-alone railroad in its Reply evidence, the Gillette, WY to Converse, WY, and the Snowden, MT to Fargo, ND line segments.[51] In its Supplemental Reply, BNSF once again only modeled two segments; the Gillette to Converse, and Glendive to Fargo line segments. Needless to say, unlike Otter Tail's full OTRR simulation, BNSF's simulation strays a significant distance from what a proper simulation looks like, and, as will be discussed more fully below, must be rejected for both legal and economic reasons.

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49 After repeated requests, BNSF provided no evidence beyond the statements included its Reply Narrative that the RTC model is a widely used tool in the railroad industry. See Otter Tail Rebuttal Workpapers Vol. III, p. 5200, and electronic file "SteptoeJohnson.pdf".

50 See BNSF Reply at III.B-21. The software did not come with an operating manual (either in machine-readable or hard copy form). Otter Tail's consultants contacted Berkeley Simulation Software to obtain an operating manual. Otter Tail's consultants were informed that no such document exists.

51 As discussed above, BNSF accepted Otter Tail's capacity model for the Gillette, WY to Glendive, MT, and Fargo, ND to Big Stone City, SD line segments. BNSF did run an abbreviated simulation of the OTRR's rail line running from Fargo to Big Stone City using one loaded coal train operating from Fargo to Big Stone City, and one empty coal train operating in the reverse direction in order to "develop alternative transit times for this section of the OTRR." See BNSF Reply at III.C-56. As Otter Tail discusses in section III.C, supra, BNSF's modeling of this segment of the OTRR provides no probative evidence.

In contrast to Otter Tail's evidence in support of its string model, BNSF has not provided any of the formulas or algorithms underlying the RTC model. The issues related to the formula underlying the RTC model are not like other computer software that might be utilized by Otter Tail, BNSF or the STB. For example, the results of the word processing software can be evaluated because the output is simply the words, numbers and tables input into the files generated by the software. Alternatively, formulae in spreadsheet software (like Lotus 1-2-3 or Microsoft Excel) can be evaluated because the software shows the formula in the cell where the calculation is made. The RTC model is not like these other forms of software. The assumptions, criteria and choices made by the software when running cannot be viewed or tested. Only the results of running the software, as determined by the manufacturers of the software can be seen.[52]

Although BNSF maintains that the RTC model is "widely considered to be one of the best models of its kind available today,"[53] BNSF makes no claim that this computer software is valid for use in determining the least cost, most efficient railroad in a stand-alone analysis. In fact, no information provided by BNSF indicates that the RTC model has been utilized for the analysis of the construction of a rail line "from the ground up." The descriptions of the studies referenced by BNSF indicate that the RTC model is utilized to test changes in a rail line's configuration or the impact of incremental traffic on a rail line. The construction of a stand-alone rail line entails the attempt to minimize construction costs, not test changes due to adjustment to the configuration of some tracks.

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52 BNSF makes no claim that its Mr. Wheeler participated in any development or testing of the creation of the RTC model software.

53 See BNSF Reply at III.B-18.

b. The RTC Model Is Unuseable Because BNSF Did Not Produce The Source Code

BNSF's failure to produce[54] the source code for its RTC model (as repeatedly requested) renders the program unusable for this case. Otter Tail was not able to thoroughly evaluate and manipulate the RTC model, including analyzing its underlying algorithms in the source code, making it untested. In contrast, Otter Tail produced the source code for its string program, allowing BNSF to completely analyze the string program and, thus, critique Otter Tail's operating plan. Moreover, Otter Tail held a special technical conference with BNSF on January 30, 2004 that allowed BNSF to ask detailed questions about the string model's construction and operation. In fact, BNSF specifically referred to its analysis of the string program source code in its Reply Narrative at pages III.B-17, III.B-21, and III.C-21 and in its Supplemental Reply at III.C-8.

The Board and the ICC have ruled several times that evidence based on a computer model will only be accepted if the evidence is accompanied by the computer model's source code. For example, when Amtrak and Conrail disagreed about the compensation formula that would apply to Amtrak's use of Conrail's lines, the ICC was forced to evaluate the computer models proposed by the two parties.[55] While the ICC eventually chose Conrail's proposed model, it was unsatisfied with the presentations of both parties.[56] Apparently recognizing that computer models were becoming increasingly important in all disputes and ICC decisions, the ICC decided to announce "certain

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54 See Otter Tail Rebuttal electronic workpaper "RTC Correspondence.pdf" for the correspondence from BNSF's Counsel declining Otter Tail's request for the RTC model source code.

55 National Railroad Passenger Corporation and Consolidated Rail Corporation- Application under Section 402(a) of the Rail Passenger Service Act for an Order Fixing Just Compensation ("NRPC"), Docket No. 32467,10 ICC2d 863, 872 (decided December 29, 1995).

56 Id. at 887 (n.68).

minimum standards" that would have to be met in the future.[57] In part, the ICC stated that "[m]odels submitted as a stand-alone, executable file must be accompanied by the source code."[58]

In a situation very similar to that facing Otter Tail today, a complainant in a rate reasonableness case was faced with an evidentiary submission of the defendant railroads that employed a special computer analysis.[59] This computer analysis was used in support of a witness' testimony.[60] Before filing its reply to this computer modeling evidence, the complainant filed a motion to compel the defendants to produce the computer model's underlying data.[61] The ICC agreed with the complainant that, until the study could be verified, it had "little probative value."[62] In fact, the ICC stated, whenever "a party is submitting computer evidence, it is important that the underlying data used in the analysis (including programs and programming method, and all relevant computer inputs and outputs) be made available."[63] Thus, the ICC granted the complainant's motion to compel.[64]

Like its predecessor, the STB has continued to emphasize that evidence based on computer programs must be accompanied by the program itself, including the source code. For instance, when BNSF and Canadian National were considering a transaction that would put them under common control, the Board cautioned all entities that might submit comments that "[c]omputer programs must be submitted in both source code and executable modules."[65]

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57 Id.
58 Id. at 888 (n.68).
59 Utility Fuels. Inc. v. Burlington Northern Railroad Company et al., ICC Docket No. 39002, slip op. at 2 (served July 18, 1984).
60 Id. at 2 (n. 6).
61 Id. at 1-2.
62 Id. at 6.
63 Id. at 7 (internal citations omitted).
64 Id.
65 Canadian National Railway Company, Grand Trunk Western Railroad Incorporated, Illinois Central Railroad Company, Burlington Northern Santa Fe Corporation, and the Burlington Northern and Santa Fe Railway Company -- Common Control ("Canadian National"), STB Docket No. 33842, slip op. at 2 (n.4) (served February 10, 2000).

Last year, the Board again reiterated that computer models that cannot be manipulated are of no evidentiary value.[66] While the Board did not specifically mention source code in that decision, it did make clear that computer models are not useable if they cannot be fully reviewed and manipulated.[67]

These Board and ICC decisions emphasize the responsibilities that are associated with the submission of computer model evidence or witnesses who rely on computer models. Evidence generated by a computer can be extremely valuable and enlightening. However, the opposition must be allowed to fully test and evaluate how the computer model works. As the Board and ICC have recognized in NRPC, Canadian National, and other cases, mere permission to use a computer model will not allow a party the necessary understanding to evaluate how it works, to verify its performance algorithms and to cross-examine the witness who relies on it. Only with the source code can a party reach this level of understanding, and BNSF's failure to produce the source code for the RTC means that BNSF's operating plan evidence is untested, unreliable, and unuseable in this case.

c. BNSF's Modeling Of The OTRR Is Unusable Because It Did Not Model The Entire OTRR System And Its Model Is Filled With Flaws

The STB must reject BNSF's modeling of the OTRR regardless of the legal reasons stated above because BNSF produced an incomplete model that is riddled with flaws. The BNSF states[68] that it accepted Otter Tail's track configuration for the OTRR's Gillette to Glendive and the Fargo

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66 See TMPA at 68.

67 Recent decisions show that the federal courts agree that production of source code is necessary when a party or witness relies on a complex computer model. For example, the Justice Department recently had an expert witness offer testimony based on his computer analysis of survey results in an anti-trust case. United States v. Dentsply International, Inc., 277 F.Supp.2d 387, 435-439 (D.Del 2003). The court found several errors with the survey. Id at 453-454. For instance, the court noted that the U.S. did not produce the source code for the expert's "PRIDEM" software and that, consequently, the defendant couldnot inspect the computer instructions underlying PRIDEM. Id. at 439. In short, the computer analysis results could not be replicated and the expert's testimony had to be excluded. Id. at 454. See also National Association for the Advancement of Colored People v. A.A. Arms, Inc., Nos. 99 CV 3999 (JBW) and 99 CV 7037 (JBW), 2003 U.S. Dist. LEXIS 8111 at 55 (E.D.N. Y. May 7, 2003).

68 See BNSF Reply at III.B-7 and III.B-8, and BNSF Supplemental Reply at III.B-1.

to Big Stone line segments, but also states that the differences in Otter Tail's and BNSF's traffic on the remaining line segments are so significant that it was necessary to perform an "independent assessment" of the OTRR's other line segments. BNSF's Reply chose to develop its "independent assessment" of the OTRR's remaining two line segments, the Gillette to Converse, WY and Snowden, MT to Fargo, ND line segments, by using the RTC model to develop separate, segmented simulations for each of the two line segments. BNSF's Supplemental Reply used the RTC model to simulate the Gillette to Converse, WY and Glendive, MT to Fargo, ND line segments. Developing segmented simulations of an integrated network is a completely flawed exercise though, because what happens on one part of a system will impact all the other parts of that system. Moreover, BNSF's modeling is so filled with anomalies and inconsistencies as to make its simulations unusable.

i. BNSF's Modeling Of The OTRR Is Incomplete

A modern railroad is a classic example of an integrated system - a group of nodes linked together through a network to provide a common service. Like other integrated systems, disturbances in one part of a rail network can rapidly impact all other parts in relatively quick fashion. One need look no further for such an example than the service crises that arose following the UP and Southern Pacific merger. When problems with integrating the two systems arose, operating difficulties in the Gulf Coast region quickly spread to other parts of the integrated rail system, with rail traffic in the Western states coming to a stand-still.[69] To truly test an integrated system like a stand-alone railroad, all major segments of the network must be tested in unison in order to provide valid results.[70] Otter Tail met this criterium, while BNSF's flawed Reply and

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[69] See STB Service Order No. 1518, Joint Petition For Service Order, decided October 31, 1997.

[70] One of BNSF's criticisms of Otter Tail's string model is that Otter Tail did not model the Reno and Campbell subdivisions. BNSF's claims are moot because Otter Tailed has essentially reconstructed the structure of these line segments currently operated by UP and BNSF, both of which transport more coal in the real world than the OTRR

Supplemental Reply models do not.[71]

ii. BNSF's RTC Model Is Filled With Flawed And Anomalous Data

Notwithstanding the fact that BNSF failed to model a complete stand-alone system, the results of its simulation must be disregarded due to serious anomalies and inconsistencies in the model's setup and output. First, train performance calculator ("TPC") charts from BNSF's flawed simulations show that BNSF used incorrect horsepower ratings for the SD70MAC locomotives operated on OTRR coal trains. For example, a TPC chart from its simulation of a coal train operating from Fargo to Big Stone City shows that the study train weighed 16,532 tons, utilized three (3) SD70MAC locomotives, and possessed a horsepower-to-ton ratio of 0.62.[72] Simply multiplying the train weight in tons by the horsepower-to-ton ratio provides the horsepower BNSF placed on the train. This calculation leads to a total train horsepower of 10,250, or 3,416 horsepower per locomotive.[73] BNSF states,[74] however, that SD70MAC locomotives are 4,000 horsepower units, not 3,416 horsepower units. This mistake occurs not only in the BNSF's Fargo to Big Stone simulation, but also in its other two Reply OTRR simulations.[75] Clearly, BNSF has input incorrect horsepower ratings into its flawed models, and underpowered its locomotives leading to invalid simulations.

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does in the hypothetical stand-alone system.

71 One possible reason BNSF did not model the entire OTRR is that it was unable to figure out how to model the OTRR's total system in the RTC model. The RTC model is a Windows based software package meaning its basic features, i.e. drop down menus, pop-up screens, etc., are fairly intuitive, but setting up and operating the model is another story. BNSF did not provide any sort of operating manual for the RTC model that was produced by the software's developer, so it is impossible to determine how the software should be operated. BNSF did provide a series of rudimentary "Wizards" that tell the user how to view information in the model and run reports, but offer virtually no explanation on key features of the program, or how to manipulate the model to test and validate simulations. See BNSF's Reply Narrative electronic files "RTC & Report Wizard Exhibit Part 1.ppt," "RTC & Report Wizard Exhibit Part 2.ppt," and "RTC & Report Wizard Exhibit Part 3.ppt." It is entirely conceivable given the lack of documentation that BNSF did not model the entire OTRR system because it could not figure out how to create the system in the simulation software.

72 See Otter Tail Rebuttal workpaper at Vol. III, p. 5743.

73 16,532 tons x 0.62 horsepower per ton = 10,250 horsepower.

74 See BNSF Reply at III.C-22, note 32.

75 See BNSF Reply electronic workpaper "Coal tpc comparison.ppt".

iii. BNSF's RTC Model Has Unrealistic Train Speeds

BNSF's Reply workpapers show that its RTC model trains instantaneously stop and start leading to impossible rates of acceleration and deceleration.[76] BNSF's Reply electronic file "fargo-snowden FINAL.ROUTE" displays the running statistics, including head-end speed and arrival and departure times at each node, for each train BNSF included in its flawed simulation of the Fargo-Snowden OTRR line segment. BNSF's electronic workpaper shows nearly every train in its simulation starting and stopping nearly instantaneously. For example, the head-end of train ESUDGLN43-14 passes node KOS1290 on day 14 of the simulation at 22 hours, 13 minutes and 19 seconds ("22:13:19") traveling at 58.9 miles per hour.[77] At the next node, KOS1300, which is 1.44 miles away, the train has come to a full stop in one minute and 38 seconds at 22:14:47. Three seconds later, at 22:14:50 after having come to a complete stop, the train is back traveling at 58.91 miles per hour. This is not the only time this train exhibits this behavior. BNSF's workpaper shows this train makes similar sudden stops and starts at nodes JAM1100, JAM1390, JAM1660, JAM2200, JAM2364, JAM2605, JAM2904, and JAM3170. BNSF's Supplemental Reply simulations show the same unrealistic changes in speed.[78] Obviously, there is a serious flaw in BNSF's Reply and Supplemental Reply simulations, and their results are unusable.

iv. BNSF Used Inconsistent and Illogical Data In Its RTC Model

BNSF's inputs into the RTC model are inconsistent and illogical. One clear example may be seen by looking at the elevations BNSF used to determine track grades in two of its simulations. The eastern-most node in BNSF's Reply Fargo to Snowden simulation is Moorhead Jct. at node

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76 BNSF makes a similar claim about Otter Tail's simulation model, but as is shown below, BNSF's claim is incorrect.

77 Otter Tail has included a partial printout of this train's statistics in its Rebuttal workpapers. See Otter Tail Rebuttal Workpaper Vol. III, pp. 5744 to 5747.

78 See BNSF's Supplemental Reply electronic workpaper "Glen - Fargo Supplemental4.ROUTE."

KOS1002. According to BNSF's workpapers, the elevation at Moorhead Jct. is 907.1 feet.[79] However, in its Fargo to Big Stone City simulation, BNSF shows the interchange at Moorhead Jct. – Milepost 42.66 at node MRH42.66 in the RTC model - having an elevation of 189 feet, 718 feet less than its other elevation reading for Moorhead Jct.[80] Similarly, in developing its simulation of the Orin Line, BNSF included only curves of greater than 4.25 degrees in its Reply simulation inputs.[81] For its simulation of the Snowden-Fargo and Fargo-Big Stone City line segments though, BNSF used a completely different criterium and included curves ranging from 0.1 degrees to 5.0 degrees.[82] BNSF's inconsistencies in its various simulations makes them incongruous and unusable.

d. Otter Tail's Simulation Model
Is A Fully Accessible And Reliable Tool

Unlike BNSF, Otter Tail provided the full source code and program inputs for Otter Tail's string diagram model with Otter Tail's Opening evidence, allowing the STB and BNSF to fully inspect the program's functionality. The simulation model used by Otter Tail in assessing the capacity of the OTRR was described in Otter Tail's Opening Exhibit III-C-2. The underlying workpapers were included in Otter Tail's Opening Errata and Supplemental Opening workpapers supporting Section III-C, including the specific computer program and all input and output files (in the electronic workpaper titled "OTRR_STRING-_Errata.zip" and "OTTERTAIL_SUPPLEMENTAL.zip"). The specific function of each data file or program and the flow of the operation of the string diagram model is shown in the electronic spreadsheet titled "ReadMe.xls" submitted with Otter Tail's Opening Errata workpapers. Otter Tail has also included in its Rebuttal Workpapers the electronic file "Field Terms.xls," which define the variables used in the string diagram model. The string

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79 See BNSF Reply electronic workpaper "fargo-snowden FINAL.NODE."
80 See BNSF Reply electronic workpaper "big stone-fargo FINAL.NODE."
81 See BNSF Reply electronic workpaper "Orin Final.LINK." BNSF corrected this problem in its Supplemental Reply simulation of the Orin Line, but does not discuss its correction in its Supplemental evidence.
82 See BNSF Reply electronic workpapers "fargo_snowdenFINAL.Link" and "bigstone_fargoFINAL.Link."

diagram model is a sophisticated, yet straightforward, user-friendly model that incorporates the fixed physical facilities of the OTRR (single track/double track/passing siding locations, yards, locomotive fueling facilities, crew-change locations, etc.) and 13 different time variables that reflect the OTRR's train operations.[83] The STB and BNSF have accepted and utilized simulation programs similar to Otter Tail's in previous stand-alone cost cases. In PPL, the BNSF accepted, and the STB utilized operating cost evidence derived in part from a string chart program similar to Otter Tail's string diagram program.[84]

BNSF attempts to discredit the use of Otter Tail's simulation program by attempting to portray it as only a "made for litigation" tool that is similar to the capacity model the STB did not accept in its TMPA decision, and to a simulation program used in the Xcel case that BNSF alleged was unreliable.[85] BNSF also asserts that the public record in previous stand-alone cost cases shows that shippers using the string diagram model have constantly been required to modify the program to address errors and flaws identified by the defendants. [86] Once again, BNSF overstates its position. While the incumbent railroads in previous SAC cases have made similar accusations about the string diagram model, the public record is clear that the defendants in these cases have misinterpreted the intent and functions of the string model program, and dramatically overstated any perceived flaws.

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83 See Otter Tail Opening Exhibit III-C-2, at p. 3.

84 See PPL at 12, "BNSF allocated the operating expenses PPL developed for the entire WMCRR between the north-south and western parts using PPL's computer programs."

85 L. E. Peabody & Associates, Inc. developed and is sponsoring the electronic version of its string diagram model used by Otter Tail in this proceeding. L. E. Peabody & Associates, Inc. has been using string diagram models (both electronic and manual models) to assist both its railroad and non-railroad clients since the firm's inception in 1956. The electronic string diagram model is one of many models developed and used by L. E. Peabody & Associates, Inc. in both litigation and non-litigation assignments. Other electronic models developed by L. E. Peabody & Associates, Inc. and used for litigation (as well as non-litigation) assignments that are also not commercially available (but are used repeatedly in commercial situations) include the discounted cash flow ("DCF") model, variable cost of service models using both URCS and Rail Form A unit costs, the SFGT formula, the computer aided railway design system ("CARDS"), to name a few. When these proprietary models are used in litigation assignments, the programs (and documentation), inputs and outputs are filed as highly confidential documents in order to protect L. E. Peabody & Associates, Inc. intellectual property while at the same time providing the opposition and the neutral evaluator the opportunity to evaluate the basis and support for the calculations presented.

86 See BNSF Supplemental Reply at III.C-6.

Furthermore, according to the public record in these cases, whatever changes have been made to the models have been limited.[87] What BNSF fails to point out is that the public record shows that the defendants' computer capacity models have been rejected outright by the STB (in the case of TMPA), or have been shown to have numerous flaws (in the case of Xcel).[88] In the end, the string model submitted by Otter Tail must be evaluated independently of any assertions regarding prior models. BNSF's attempts to bias any evaluation based on unsubstantiated comparisons must be ignored.

e. BNSF's Criticisms About Otter Tail's Simulation Program Are Misleading, Incorrect And/Or Overstated

BNSF levels several criticisms at the performance of Otter Tail's string diagram program.[89] Before addressing BNSF's specific criticisms of the string model and its use in this proceeding, it is important to note two aspects of BNSF's criticisms. First, the string diagram model, as well as the RTC model used by the BNSF, are simply tools to assist in analyzing and developing the hypothetical stand-alone railroad. Just as the forecasted inflation in the DCF model or the unit costs for components of the stand-alone railroad may not be a perfect replication of how the real world will operate, the string diagram model is intended to be a reasonable surrogate for analyzing the hypothetical railroad. BNSF confirms this very point when it states: "A proper simulation model attempts to produce a picture of real operations through the use of simplifying assumptions based on the average time for particular events."[90] The ICC has previously acknowledged that no model can perfectly recreate the real world, stating "our search here is for a model that is reliable... but that is not so cumbersome (by attempting to mimic every possible detail of the real world) as to be

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87 See Public Service Company of Colorado D/B/A Xcel Energy v. The Burlington Northern and Santa Fe Railway Company, Complainant's Rebuttal Evidence (Public version).

88 Id.

89 See BNSF Reply beginning at III.B-13.

90 See BNSF Reply at III.B–30.

practically unusable in a real case."[91] The BNSF's specific criticisms regarding the computer programming logic, the inputs, and the outputs of the string diagram model indicate that the BNSF found the model usable and was able to manipulate the calculations made by the string diagram model.[92]

Second, BNSF claims that Otter Tail failed to describe its string diagram model in its supplemental opening evidence. BNSF asserts given Otter Tail's failure, it reserves the right to comment further on the string diagram model after the submission of Otter Tail's rebuttal evidence.[93] BNSF's claim is extremely disingenuous given that BNSF knew of, and agreed to, Otter Tail's use of its rebuttal string diagram model in its supplemental opening evidence.[94] Furthermore, how many bites of the apple does BNSF get to receive in its review of Otter Tail's evidence? Otter Tail included its rebuttal string model program with its Supplemental Opening evidence, including all supporting electronic files and databases. BNSF had the opportunity to review and scrutinize the operation of the string model presented in Otter Tail's Supplemental Opening evidence, and availed itself of the opportunity to do so.[95] To claim that it has the right to file further evidence in this case is beyond the bounds of ethical jurisprudence.

Overall, BNSF attacks both the underlying logic of the string diagram model process and the inputs into the model.[96] The purported flaws addressed by BNSF are as follows:

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91 NPRC, 10 I.C.C.2d 863, 871-72 (1995) ("Amtrak").

92 The access that the BNSF had to the workings of the string diagram model submitted by Otter Tail can be contrasted to the RTC model relied on by BNSF's witnesses which was only provided in a compiled form, does not produce outputs in a spreadsheet or database form, and requires large amounts of data to be entered through "computer interface" (as opposed to accessing usable databases).

93 See BNSF Supplemental Reply at III.C-6.

94 See letter from Otter Tail's counsel to BNSF's counsel in Otter Tail Rebuttal electronic file "BNSF.pdf".

95 See BNSF Supplemental Reply at III.B-3 to III.B-4 and III.C- 6 to III.C-9.

96 In Opening, Otter Tail addressed the string diagram model in Section III-C. BNSF generally critiques the inputs and outputs of Otter Tail's simulation program primarily in Section III.B of its Reply, and critiques the internal workings of the model in Section III.C. In Rebuttal, Otter Tail has followed the format of BNSF's Reply and Supplemental Reply evidence, but does address a few at BNSF's Supplemental III-C issues in this III-B Rebuttal Section.

1. The String Model Process is Laborious and Prone to Error;[97]
2. Loaded and empty trains are not "linked";[98]
3. The model does not detect "T-Bone" collisions;[99]
4. The number of trains exceeds the capacity of sidings and yards;[100]
5. Some trains spend too long on the system, while others do not appear at all;[101]
6. Otter Tail's model period is too short, and is not the OTRR's peak period;[102] and
7. The string diagram model does not produce intermediate files to reconcile transit times and service units.[103]

Each of BNSF's criticisms is addressed below.

i. The String Diagram Process Efficiently Identifies A Feasible System

BNSF contends that the string model diagram process is a complex, laborious and inefficient process that is prone to error, and a process that the STB should not have to perform in this case. [104] Furthermore, BNSF asserts that the results of string model process are unverifiable, and that the process Otter Tail uses to verify the validity of the OTRR system do not account for all the intricacies of the stand-alone system.[105] In actuality, Otter Tail's string diagram process is no more laborious and inefficient than many other stand-alone processes, including BNSF's RTC process. Moreover, the string diagram process is designed to develop a feasible and efficient stand-alone

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97 See BNSF Reply Supplemental Reply at III.B-4.
98 See BNSF Reply at III.B-14.
99 See BNSF Reply at III.B-13.
100 See BNSF's F Reply Narrative at III.B-13 to III.B-43.
101 See BNSF Reply at III.B-16.
102 See BNSF Reply at III.B-25 to III.B-26.
103 See BNSF Supplemental Reply at III.C-7.
104 See BNSF Supplemental. Reply at III.B-3 and III.B-4.
105 Id.

railroad system, and to overcome the shortcomings of BNSF's blind reliance on computer generated outputs.

Otter Tail explained in its Opening Exhibit III-C-2 that the string diagram process is designed to identify flaws in either the operating plan and/or the system design, and to provide a mechanism to correct any identified flaws.[106] The string diagram model flows the traffic over the OTRR during the peak traffic day for the peak year included in the 20-year DCF analysis. The process is iterative in that first one train is flowed over the system, and then additional trains are added. The operation of the first train will have no activities of other trains with which to contend, but as trains are added, operational conflicts between trains previously flowed and the trains added are identified and resolved.

Resolution of these conflicts can take two primary forms. In one form, additional infrastructure can be added to the system in the guise of additional or lengthened passing sidings and yard tracks, or the addition of a second mainline track. In the second form, trains operating over the system can be slowed or held in yards or sidings to resolve any conflicts. Such manual interventions are performed hundreds of times per day in real world operations by railroad dispatchers. While adding infrastructure may be the easiest way to resolve a conflict, it may not be the best. The key to designing a feasible and efficient stand-alone railroad system is balancing the addition of infrastructure and resolving problems through operational intervention.

BNSF's approach to designing a stand-alone railroad system implicitly only employs the first form of conflict resolution. As BNSF explained on page III.B-30 of its Reply evidence, it ran its RTC simulation of the Snowden to Fargo line segment until all yards were filled to capacity during various times of the study period. BNSF then compared its RTC transit times to Otter Tail's string

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[106] See Otter Tail Opening Exhibit III-C-2 at page 1 of 6.

diagram transit times, and found that the RTC times were generally longer . It concluded based on its simulation and transit time comparison that no further infrastructure could be removed from its version of the OTRR. There are two flaws with BNSF's approach. First, BNSF states that since its yards were filled to capacity "at various times," it could not reduce yard capacity. However, BNSF never states, or most likely never looked at, how long the yards were filled to capacity.[107] If the yards were at capacity for only a few minutes, it may have been possible to hold a train at siding just outside the yard to let a departing train clear a yard track. Such an approach would have allowed for a smaller yard, without appreciatively impacting train operations and transit times. The only way to test this was to rerun the RTC model with slightly less yard tracks, and then compare the results. Second, BNSF's transit time comparison should not have been to Otter Tail's string diagram model transit times, but to an other run of its RTC model with a slightly reduced infrastructure. Without comparing its RTC simulation to another RTC simulation, BNSF has no way of determining if it has truly designed a least cost, efficient system.

In contrast to BNSF's approach, Otter Tail's string diagram process utilizes both forms of operating conflict resolution to find an efficient, feasible system. As stated above, the initial design of the stand-alone system was developed by Otter Tail's operating and engineering experts, and then this design was tested in the string-diagram model. Through an iterative process, Otter Tail identified conflicts along the OTRR system, and then, depending upon the number and position of these conflicts, either added or changed infrastructure to resolve the issue, or made manually interventions to fix the conflict.[108] Otter Tail's approach mimics the way railroads are designed and

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107 It is most likely not a coincidence that BNSF named the supporting electronic file for its claim "RTC Animation Snapshots.ppt." Like all "snapshots," BNSF's pictures only capture one specific moment in time, and do not provide any real evidence about how long these yards stayed in the conditions pictured.

108 BNSF incorrectly construed Otter Tail's explanation of this process that occurred during the January 30, 2004 technical conference as an admission that the string model does little more than prepare a preliminary timetable of movements, and the capacity analysis is essentially a manual exercise. See BNSF Supplemental Reply at III.B-3. Otter Tail strenuously objects to this interpretation of its explanation of the string diagram model's operation.

operated in the real world, where every effort is made to maximize use of system resources by combining the calculating powers of computers with the power of human judgement. One need only look at the dispatching centers operated and maintained by all Class I railroads to verify that this is how real world railroads operate.

BNSF also characterizes Otter Tail's approach to system design as laborious, prone to error and unverifiable, and an approach the STB should not have to take the time to verify.[109] As for the purported "laborious" nature of Otter Tail's approach, the methodology employed by Otter Tail is no more laborious than any other aspect of these extremely complex stand-alone rate cases, including traffic group selection, investment and operating cost inputs and variable cost analysis. Furthermore, by BNSF's logic, use of the RTC model must be summarily rejected because all inputs into the RTC model are made individually, i.e., no batch entry, which is an extremely laborious and time consuming process.

Furthermore, BNSF terms the string model process unverifiable because Otter Tail does not run the string model program after making its manual intervention adjustments. This claim is just an extension of BNSF's gold-plated approach to stand-alone system design in which it adds infrastructure to resolve conflicts instead of using smart operational procedures. The string diagram model, like the RTC, is a deterministic model, which means running the program multiple times without altering any input variables will unvariably produce the same answers every time. Otter Tail's manual intervention adjustments are made on the outputs of the model. Running the string-diagram model after making the manual adjustments would provide no additional verification not already present. Morever, the number of manual intervention adjustments made are slight, in this

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[109] See BNSF Supplemental Reply at III.B-4.

only 32.9, or 1.42%. Any impact these adjustments have are clearly visible by review of the string-diagrams.

Finally, BNSF deems the string diagram process, including use of manual intervention adjustments, as prone to error and unreliable. As an example, it points to four (4) purported conflicts unaccounted for in Otter Tail's manual intervention adjustments. Otter Tail has reviewed BNSF's claim and agrees that these conflicts need to be resolved. However, resolving these conflicts has a di minimus impact on OTRR transit times, adding only one train hour to the peak period's 1,500 total train hours.[110] Moreover, this error on Otter Tail's part is no more significant than the error BNSF said it made in its RTC model.[111]

ii. Linking of Trains

BNSF asserts that the string program utilized by Otter Tail is flawed because "Otter Tail failed to make any connection between empty trains returning from destinations and loaded trains departing from the mines for those destinations."[112] BNSF states that the failure to "link" the empty and loaded trains "marks a significant departure from the real world unit coal train service that Otter Tail purports to provide..."[113] BNSF characterizes Otter Tail's string program as assuming that PRB coal mines have unlimited capacity.[114] As shown below, BNSF's arguments regarding the linking of loaded trains for the operation of the hypothetical stand-alone railroad are without merit. In addition, the RTC model as used by BNSF fails to link individual trains to the line segments of the OTRR.

As discussed in Otter Tail's Opening evidence, in developing the flow of traffic for the string diagram model, Otter Tail started with the actual departure mine time for the loaded trains of OTRR's traffic group.[115] The use of the actual departure time reflects the time when the customers

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110 See Otter Tail Rebuttal electronic file 'String 47M - Resolved Conflicts.xls."
111 See BNSF Supplemental Reply at III.B-6, Note 2.
112 See BNSF Reply at III.B-14.
113 See BNSF Reply at III.B-14.
114 See BNSF Reply at III.B-15.
115 The process for flowing the traffic was discussed in Exhibit III-C-2 to Otter Tail's Reply evidence.

of the OTRR requested the coal trains and the actual loading time that was available at the coal mine. Then the string diagram model flowed the loaded trains to interchange or destination. After the allowance for the movement off-line or unloading time at destination, the empty trains were then returned to the origin mine. Because the trains move at speeds over the OTRR which are faster than would actually occur on BNSF's system, the empty trains will not return at the times that occur in BNSF's actual operation. However, this disconnect cannot be avoided unless the actual loading times are ignored. Otter Tail's operation does not reflect a flaw but rather a constraint imposed by comparing real world requirements versus the hypothetical operation of the OTRR.

(a) Otter Tail's Determination of Train Operations Is Correct

Any computer model that analyzes round trip cycles in the SAC environment will result in some problem with the "linking" of the trains from one complete cycle to the next. The only way to avoid such a problem would be for the stand-alone railroad to perform exactly like the railroad that it's replacing and ignore any economies and efficiencies resulting from the streamlined facilities and operations of the stand-alone railroad.[116] This is completely contrary to the fundamental underpinnings of the Guidelines and SAC policies and theory. In fact, if the OTRR were no more efficient than actual BNSF operations, then there would be no point to conducting a SAC analysis. Otter Tail's solution was to begin with the actual loading time. BNSF's solution was to begin with the actual time at the beginning of the empty cycle. For the reasons discussed above, Otter Tail's solution is an accurate representation of how the OTRR would operate for purposes of determining:

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[116] As discussed elsewhere in this Rebuttal Evidence, in many instances the BNSF has proposed that the OTRR could be no more efficient than actually occurs on the BNSF. Such a requirement is a violation of the least cost, most efficient standard in the Guidelines.

1) the feasibility of the OTRR facilities and 2) the calculation of the operating statistics for the OTRR.[117]

(b) Response to BNSF's Criticism of the Linking in Otter Tail's String Model

Otter Tail has not demonstrated that the mines have the capacity to hold trains for the extended periods of time because such a demonstration was not necessary. The purpose of the string analysis is to demonstrate that the facilities, equipment and personnel are sufficient to handle the traffic group, a demonstration that Otter Tail made in detail.

As discussed in Opening, in developing the flow of traffic for the string diagram model, Otter Tail started with the actual mine departure time for the loaded trains of OTRR's traffic group.[118] The time gaps in question are the outcome of linking real world operating conditions (i.e., actual mine departure times) with the hypothetical, optimally efficient world of the stand-alone railroad (i.e., faster trains, less congestion, less delays, etc.). Using actual departure times enabled Otter Tail to test the feasibility of the entire OTRR system by beginning each cycle based on known mine load out availability and customer demand for coal.[119] The difference in the cycle times achieved by the OTRR and BNSF (in the real world) caused this phantom problem. Stated differently, Otter Tail's objective was to demonstrate the feasibility of the OTRR using actual dispatch times to begin each cycle. This phantom problem vanishes if actual dispatch times are not used for every cycle (only the first cycle) or if the trains are held at destination or off-line until the next actual dispatch time, as BNSF did in its Reply. All three approaches produce exactly the same answer and none of the approaches require additional construction to hold trains at origin.

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[117] The output of the string diagram model is utilized to calculate the number of locomotives, number of railroad-owned railcars, and the number of crew personnel (including taxi service and lodgings) required by the OTRR.

[118] The process for flowing the traffic was discussed in Exhibit III-C-2 to Otter Tail's Reply evidence.

[119] As the STB said in an analogous situation, a complainant is not allowed to "assume that connecting railroads would meet the same level of operating efficiencies." See WTU at 666.

(c) BNSF Methodology for "Linking" Trains

While the BNSF implies that it has utilized the RTC model to develop operations over the OTRR, in fact, the BNSF has only developed its model for 3 selected segments. For the remainder of the OTRR route, BNSF has based its mathematical calculation of operating statistics on the average for actual BNSF trains. The 3 segments analyzed in the RTC model are:

1. Converse - Gillette;[120]
2. Snowden - Fargo; and
3. Fargo - Big Stone Plant.

In its Supplemental Reply, BNSF remodeled the Converse to Gillette segment, modeled its Glendive to Fargo segment, and continued to use its Fargo to Big Stone simulation.

For the Converse - Gillette and Snowden - Glendive - Fargo segments, BNSF's Reply developed a unique train list. For the Fargo to Big Stone Plant segment, BNSF only developed the RTC results for the movement of a single train.[121]

Major problems exist with the BNSF's approach. First, there is no link to the trains moving between the 3 segments. For example, the inputs for the BNSF's Reply RTC model for the Converse - Gillette segment show 5 trains destined to the Big Stone Plant moving in the peak period (C0BSBBAM78A, C0BSBBAM79A, C0BSBBAM80A, C0BSBBAM81A, and C0BSBBAM82A).[122] However, the inputs for the BNSF's RTC model for the Snowden - Glendive - Fargo segment show only 2 trains moving to the Big Stone Plant in the peak period (CGLNBSB7 and CGLNBSB8).[123] Not only have 3 trains "disappeared," the BNSF changed the nomenclature for

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120 The BNSF actually modeled from Converse to Oriva, near Gillette.
121 See BNSF Reply at III.C-56.
122 See BNSF Reply electronic workpaper "Orin File.Route."
123 See BNSF Reply electronic workpaper "Fargo Snowden Final.Route."

the trains so that no link can be easily determined between the two sets of inputs. Then, for the third segment (Fargo to Big Stone Plant), the input for the train reflects a hypothetical train that is not linked to the trains moving in either the Converse - Gillette segment or the Snowden - Glendive - Fargo segment.

Another problem exists in that trains leaving one segment in the RTC model runs appear at the next segment either before or after the actual time of departure. For example, the BNSF's Reply RTC model for the Snowden - Glendive - Fargo line segment shows empty coal train E1BENBTM49A leaving Glendive at 5:49AM on the 8th day of the period modeled. Allowing for the 17 hours and 23 minutes that BNSF calculated for the transit time from Glendive to Gillette,[124] the train should have arrived at Gillette at 11:12PM on the 8th day. However in the RTC model for the Gillette - Converse segment, the inputs show this train at Gillette at 5:26AM on the 9th day, over six hours later than the predicted arrival time.[125] Similarly, the BNSF's Reply RTC model for the Snowden -Glendive - Fargo line segment shows empty coal train EBSBBAM79A (an Otter Tail train) leaving Glendive at 2:29AM on the 9th day of the period modeled. Allowing for the 17 hours and 23 minutes that BNSF calculated for the transit time from Glendive to Gillette, the train should have arrived at Gillette at 7:52PM on the 9th day. However in the Reply RTC model for the Gillette - Converse segment, the inputs show this train at Gillette at 11:29AM on the 9th day, over 7.5 hours earlier than the predicted arrival time. These examples are not isolated instances but, rather, are part of an overall problem in the BNSF's failure to link the trains moving between the segments that it modeled. BNSF's Supplemental Reply evidence exhibits the same problems linking trains.[126] The BNSF's Reply and Supplemental Reply analyses fail to account for the facilities required to hold

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124 See BNSF Reply electronic workpaper "Line Segments 04Q02.pdf," pp. 1and 2.
125 See Otter Tail Rebuttal electronic workpaper "Common Empty Coal Trains.xls," level "match."
126 See Otter Tail Rebuttal electronic file "Common Empty Coal Trains_Supplemental.xls," level "match."

these trains on the line segment between Glendive and Gillette and, furthermore, do not explain how the trains can traverse the Glendive - Gillette segment faster than shown in the BNSF's analysis.

In summary, the BNSF cannot claim that the RTC model reflects "real world service." The RTC model, as applied by BNSF, implicitly assumes that the OTRR has unlimited capacity to hold or stage trains on the portions of the OTRR that are not considered in the RTC model analysis. By failing to show the through movement from origin to destination (or interchange), the BNSF has attempted to hide its failure to link loaded and empty trains over the OTRR. Additionally, BNSF did not even attempt to address its missing trains problems.

iii. Detection of T-Bone Collisions

The BNSF claims that the string model fails to recognize what BNSF has termed "T-Bone" collisions when one train departing a siding or yard runs into the side of another train on the mainline.[127] BNSF attempts to support its claim through an analysis of Otter Tail's simulation data. Contrary to its assertions, BNSF's criticisms reflect its continued misunderstanding of the string diagram model, and reflect a fundamental error BNSF made when attempting to interpret its own analysis.

BNSF asserts that trains in Otter Tail's simulation must be colliding because trains arriving at the milepost just short of the alleged collision are traveling at high rates of speeds, and could not possibly stop in the allotted time. BNSF bases its assertion on output it collected from Otter Tail's model by inserting additional code into the simulation model.[128] As discussed in Section III-C-2 below, Otter Tail's simulation model is separated into subroutines that are constantly determining each train's location relative to other trains, whether or not a train must pull into a siding to let another train pass, and, if a train must stop, how much time and distance it must allow to stop the

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127 See BNSF Reply at III.B-13.
128 See BNSF Reply at III.B-14.

train in a safe manner. The two subroutines that allow the model to perform these complex functions are the Acceleration Routine and Braking Routine.[129] These two routines are constantly working in unison to adjust train speeds dependent on traffic and other variables. Because braking time and braking distance are functions of a train's speed, when the model determines that a train must stop, Otter Tail's simulation program determines first how fast a train would be going at a particular point on the system, and then determines when the train must start braking, taking into consideration train weight and other resistance factors, in order to stop in time.[130] In other words, the string diagram model accelerates each train up to the stopping point, and then, based on its estimated speed at the stopping point, jumps back and begins braking the train for the stop. A review of BNSF's modified string chart program and the captured string chart data shows that, while BNSF's modification captured acceleration and braking data, it only used the acceleration data in its analysis. In other words, BNSF only captured the train moving, not stopping. Contrary to BNSF's mistaken assertion, Otter Tail's trains do not stop instantaneously,[131] unlike trains in BNSF's flawed simulation using the RTC model.

iv. Capacity at Sidings and Yards

BNSF states that the string diagram model fails to accurately consider the size of necessary sidings and yards, resulting in more trains in a siding or yard that can physically be placed there.[132]

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129 Otter Tail as included in its Rebuttal workpapers a copy of its rebuttal string program with line numbers inserted for reference. See Otter Tail electronic workpaper "otter_tail_string_rebuttal.wpd". These routines are found in the program at lines _____.

130 For example, a train traveling at 50 miles per hour will require a longer time and distance to stop, holding all else constant, then the same train traveling 25 miles per hour.

131 BNSF could have determined that trains in Otter Tail's simulation model were not stopping instantaneously if it had properly constructed and analyzed its Exhibit III-C-5, which BNSF claims shows an Otter Tail train instantaneously starting and stopping. The graph in the exhibit appears to show near instantaneous stops due to the inconsistent time scale BNSF used in constructing the graph. Otter Tail has included in its Rebuttal workpapers the Rebuttal electronic file "(Erratic Speeds) fixed.xls" which utilizes a consistent time scale on the x-axis and shows that trains in Otter Tail's simulation model come to gradual stops.

132 See BNSF Reply at III.B-13 and III.B-43.

However, to the extent this occurred in OTRR operations, the problem can be remedied by holding trains at prior sidings or yards. This is no different than what occurs if the train cannot proceed ahead until siding capacity or yard capacity is available.[133] Real life train operations utilize these sorts of adjustments hundreds of times per day. This is what a dispatcher is paid to do.[134]

In addition, BNSF states that it identified 142 examples of overloaded sidings and yards. BNSF's methodology for counting these purported overloads, however, overstates the number of purported occurrences by almost 50 percent. There are three major flaws with BNSF's approach. First, BNSF includes train meets outside the study-period of October 11 to October 18. Second, BNSF mistakes the line segment between W. Glendive and W. Snowden spur as being a siding that is 0.05 miles long; instead it is the first line segment at the beginning of over 20 miles of doubled tracked territory on the OTRR system.[135] Third, BNSF's methodology counts an overload situation each time a train on the mainline passes an overloaded siding, even if multiple mainline trains pass the same waiting trains.[136]

As discussed earlier, and explained to BNSF during the string model technical discussion, the string diagram process is an iterative one, with a goal of verifying the *least cost, most efficient* configuration for the stand-alone system. Reaching this goal requires more than blind faith in an unverified computer model. It requires, as in the real world, human intervention. In response to

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133 Otter Tail's manual adjustments are shown in Rebuttal electronic file "STRING_47M.xls," Worksheets "DataA," "DataB," "DataD," and "DataE." Each adjusted train time is shown in red. The calculations showing each adjustment are also shown.

134 See FRA description of dispatcher duties. www.fradot.gov/downloads/Reasearch/ord0309.pdf at page 30.

135 See Otter Tail Opening Errata electronic file "Route.dbf," and Otter Tail Supplemental Opening electronic file "Route.dbf."

136 For example, BNSF's workpapers show three trains, CSCMGFA163, CBTMBEN136, and CDKMSUD138, occupying the siding between W. Beach and E. Beach. While these trains are being held on the siding, two trains pass on the mainline track, and then, after train CSCMGFA163 departs, two more trains pass the remaining two trains on the siding. BNSF's methodology counts this as four (4) overloaded sidings, when in fact, only one (1) overloaded situation occurs.

BNSF's criticisms, Otter Tail reviewed the output of the OTRR's peak day for capacity issues.[137] Based on this review, Otter Tail determined that 21 trains required manual intervention and adjustments.[138] These adjustments created an increase in the train hours produced by the string diagram model of 39.2 hours, an increase in train hours of 1.4 percent.[139]

v. Missing Trains And Long Train Delays

BNSF's Reply claims[140] that Otter Tail's string diagram program did not account for 207 empty coal trains returning to their origin mines. BNSF also claims that some trains in Otter Tail's model were delayed for up to 16 hours at the Glendive Yard. BNSF is correct that some empty coal trains were unintentionally excluded from Otter Tail's simulation, but overstates the number of missing trains, and the corresponding impact on the OTRR's operating statistics. The majority (over 68 percent) of the so-called omitted trains would return outside the simulation study period, and therefore are irrelevant to the analysis.[141] Furthermore, the omitted trains that would move during the study period moved short distances between PRB origin mines and interchange locations at Converse and Donkey Creek, and, as such, had a minimal impact on the OTRR's operating statistics. For example, the omitted coal trains accounted for less than three percent of the locomotive unit miles, and less than nine percent of the crew starts.[142] Otter Tail has adjusted the inputs to its Rebuttal string program to account for these omitted trains.

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137 As noted in Otter Tail's Opening, the peak day was October 18 and the movement of trains on that day was graphically shown in Attachment No. 1 of Exhibit III-C-2.

138 See Otter Tail Rebuttal electronic file "Statoutput_revised.xls."

139 Otter Tail made its adjustments on the busiest operating day of the peak year of the OTRR's operations. This clearly shows that the OTRR has the capacity to handle traffic on less congested operating days. The adjustments applies to all trains moving on the peak day, and, in turn, to the annual operating statistics calculated by Otter Tail.

140 See BNSF Reply at III.B-16.

141 See Otter Tail Rebuttal electronic workpaper "Add Back Empty Trains to Locomotive Analysis - Corrected.xls." Due to the fact that Otter Tail began flowing trains through the OTRR system before the peak analysis period, an appropriate number of empty trains is included in the OTRR analysis.

142 Id.

BNSF also claims that certain trains were sitting in the Glendive Yard for inordinate amounts of time. Upon inspection, Otter Tail found that one of the locations in its simulation program was mislabeled, leading to the long dwell times for certain trains. Otter Tail has corrected this issue in Rebuttal.[143]

vi. Otter Tail's Study Period Is Too Short, And Is Not The OTRR's Peak Period

Otter Tail explained in Opening[144] that the OTRR's facilities and operating plan have been designed to handle the flow of traffic on the peak operating day of the peak year of operation. In other words, the OTRR has been constructed so that the facilities in-place in the first year of the railroad's operation are of sufficient size and capacity to handle the traffic during the busiest traffic day of the busiest traffic year on the railroad, which does not occur until 20 years into the future. Otter Tail determined from revenue and train movement data provided by BNSF in discovery, and from application of Otter Tail's coal traffic forecast, that October 18, 2021 is the OTRR's peak traffic day. Otter Tail used traffic data for the trains operating on the peak day, and the seven days prior to the peak day, as the inputs for its string diagram analysis.[145]

BNSF claims that reliable capacity requirements cannot be determined by looking only at peak-day traffic, and that instead Otter Tail should have analyzed a longer, sustained period of traffic.[146] BNSF further asserts that October 18, 2021 is not the OTRR's true peak day because Otter Tail failed to take into consideration returning empty coal trains in identifying daily traffic levels, and asserts that October 18, 2021 is not the peak operating day on the busy Gilletee - Converse or Fargo -

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143 See Otter Tail Rebuttal electronical workpaer "Route.DBF."
144 See Otter Tail Opening at III.C-4 and III.C-5.
145 Including the seven days before the peak operating day in the string diagram allows the model to incorporate the impact of empty coal trains returning to the system.
146 See BNSF Reply at III.B-25.

Glendive line segments, so this day cannot be a true "peak day."[147] BNSF's claims are all incorrect as will be explained below.

Otter Tail designed its facilities to handle the flow of traffic on the peak operating day of the peak year of operation. This approach is consistent with the method used by the STB in assessing the stand-alone operating plan in its FMC decision, and in fact, was an approach advocated by BNSF's Witness Wheeler in testimony submitted by the defendant railroad in FMC. The STB stated in FMC that a stand-alone railroad's capacity must be sufficient to meet "peak period demands."[148] To determine whether the FMC stand-alone railroad had sufficient capacity to handle its peak period traffic levels, UP relied upon the testimony of BNSF's current Witness Wheeler, who was then an employee of the UP.[149] Mr. Wheeler stated in his FMC testimony that, when he evaluated rail capacities, he did not analyze long peak periods of traffic, but rather investigated shorter, discrete periods of traffic, in many cases as small as three to four hours[150] instead of long study periods as BNSF does in the instant case.[151] BNSF's approach, which studies a period that does not contain the SARR's peak operating day as determined by Otter Tail, fails to show that the SARR can handle its peak traffic day. Otter Tail's approach of simulating the peak day, on the other hand, provides the assurance that the stand-alone railroad will have the capacity to meet its absolute peak in operations.[152]

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147 See BNSF Reply at III.B-25 and III.B-26.

148 See FMC at 39.

149 See Verified Statement of David R. Wheeler, Vol. 3 of Union Pacific's Redacted Reply Narrative. Copies of the relevant pages of Mr. Wheeler's VS are contained in Otter Tail's Rebuttal Workpapers, Vol. III, pp. 5737 to 5741.

150 Wheeler VS at 14. "we look at three to four-hour periods to identify sustained peaks, because a rail line can more easily tolerate shorter peaks. We also find that the railroad's physical plant must be adequate to handle peaks of this magnitude."

151 In fact, one of the capacity analysis approaches Mr. Wheeler used in FMC was a Bottleneck Analysis that analyzed peak day capacity in the peak year of operation. See Wheeler VS Exhibit DRW-3A.

152 This also provides an extremely conservative estimate of plant investment because it means that Otter Tail has invested funds in its start-up for physical plant that will not be required until 20 years into the future.

BNSF also takes issue with Otter Tail's approach for determining the OTRR's peak operating day by claiming that Otter Tail's methodology does not account for empty coal trains in its peak day estimate, nor does it explicitly account for the fact that the peak operating day on the Fargo - Glendive line segment may be different than the peak operating day on the Gillette - Converse segment.[153] Instead of utilizing Otter Tail's approach for determining a peak operating period, BNSF utilized an approach that it claims accounts for the impact of empty coal trains returning to the SARR, and accounts for the Glendive - Fargo line segment's peak day. BNSF's alternative method is invalid and must be disregarded because it is based on faulty assumptions.

Otter Tail's Opening evidence outlined how the peak operating day was determined.[154] First, Otter Tail identified all the loaded train originations for each day of the base year 2002 traffic. Next, these base year originations were adjusted to peak year 2021 levels through the application of Otter Tail's traffic forecast.[155] After applying the forecast, the day with the peak number of loaded trains entering the system was identified, and used as the basis of Otter Tail's simulation.[156] BNSF claims that Otter Tail's approach is flawed because it did not take into consideration empty coal trains returning to the OTRR system. BNSF's claim is built on the assumption that the return date of empty coal trains operating over the stand-alone system is known. But the date and hour when empty coal trains return are, in fact, not known and cannot be known without running the simulation. Empty return times are a function of on and off-SARR transit times, both of which can vary

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153 See BNSF Reply at III.B-25 and III.B-26.
154 See Otter Tail Opening Exhibit III-C-2.
155 Otter Tail held the non-coal traffic levels constant for the 20-year DCF period so that base year non-coal traffic is the same as peak year non-coal traffic.
156 The application of this procedure is contained in Otter Tail Opening electronic workpaper "Peak Coal Trains.xls."

greatly.[157] Instead of guessing as to a peak day, Otter Tail utilized known origination dates to determine the day when the most loaded trains will be operating on the OTRR system.

BNSF's other assertion, namely that Otter Tail did not take into consideration that the Fargo - Glendive line segment may have a different traffic peak than the OTRR system as whole, is just a continuation of BNSF's faulty strategy of not simulating the entire OTRR. Instead of looking at a system wide peak period, BNSF instead based its peak period determination on the supposed peak transit period for the Fargo-Glendive line segment. Any true model of a stand-alone system must take into consideration the system as a whole, not just isolated parts, as BNSF has done by focusing on the Fargo - Glendive line segment.[158] This is due to the interconnected nature of the railroad system. What happens in the PRB impacts the flow of traffic on the Glendive-Fargo line segment, while the flow of traffic over the Glendive-Fargo line segments impacts what happens in the PRB. By modeling the whole system, Otter Tail has taken into consideration the interaction of traffic moving between all line segments, and provided a better simulation of the OTRR's operations.

vii. <u>String Diagram Files</u>

BNSF argues that the string diagram model does not produce "intermediate" files like the RTC does showing the complete dwell and transit times for each train, and, therefore, it is impossible to confirm if the string diagram model has accurately accumulated service units.[159] BNSF's claim is

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157 For example, in Otter Tail's Opening electronic workpaper "Peak 2021 v2.0.xls," Otter Tail shows that estimated off-SARR times can vary from 7 hours to nearly 14 days, while its Errata electronic file "TIMSE2.xls," shows on-SARR times can vary from 45 minutes to 2.5 days. The fact that off-SARR transit times can vary so greatly also invalidates BNSF's approach for selecting a peak week. BNSF included in its electronic workpapers the file "SMHI7JC Modified.xls," where it estimated its peak period on the Fargo-Glendive line segment by imputing return times for coal trains ranging from one (1) to seven (7) days. As shown in Otter Tail's electronic file "Peak 2021 v2.0.xls," off-SARR times can range up to double BNSF's largest return time estimate. Given the range in possible return times, BNSF cannot conclude that it determined a true peak period.

158 In its flawed simulation of the Gillette - Converse line segment, BNSF falls into a trap of its own making, by using the same study period as its Fargo-Snowden simulation, even though the two line segments may have different peak periods.

159 <u>See</u> BNSF Supplemental Reply at III.C-7.

nothing more than a red herring. Otter Tail provided in opening and supplemental opening evidence all program inputs, outputs and code files allowing BNSF and the STB to see how and where all transit and dwell times are used and developed within the string diagram model. Once again, in contrast to Otter Tail following the STB's evidentiary rules and providing the STB with an uncompiled version of its program, BNSF failed to provide an uncompiled version of the RTC, and thus, denying Otter Tail the opportunity to truly verify the RTC model's results.

f. Track Parameters and Topography

On Opening, Otter Tail constructed the main track to a standard that allows maximum train speeds of 50 MPH for loaded trains and 60 MPH for empty trains with a maximum gross weight on rail of 286,000 pounds.[160] On Reply, BNSF agrees to construct the mainline to these standards.[161] However, BNSF claims that Otter Tail failed to reflect speed restrictions imposed by municipalities and has added these restrictions. In Opening, Otter Tail did reflect the speed restrictions in municipalities where applicable. As discussed in Section III-C-2 below, BNSF has not supported its claims for additional municipal speed limits, and Otter Tail continue to use its opening speed limits in Otter Tail's Rebuttal evidence.

g. Signal/Communication System

As described previously, the OTRR's mainline track configuration consists of alternating sections of single and double track, with CTC and power switches controlled by centralized dispatchers on the main line.[162] BNSF has accepted Otter Tail's proposed traffic control configuration.

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160 See Otter Tail Opening at III-B-10.
161 See BNSF Reply at III.B-62 to 63.
162 See Otter Tail Opening at III-B-11.

h. Track between

BNSF accepts Otter Tail's assumption that the OTRR will use BNSF's trackage rights over the

However, BNSF alleges that Otter Tail has understated the cost for the OTRR to utilize these trackage rights.[164] Otter Tail responds to the cost issue in Section III-D-5.

163 See BNSF Reply at III-B-63.
164 Ibid.

III-C
OPERATING PLAN

III-C OPERATING PLAN

The OTRR's operating plan, as presented in Otter Tail's Opening Narrative, was developed by Otter Tail's rail operations expert, Mr. Richard McDonald, on the basis of his knowledge of the best practices of modern American railroads; his experience as a senior operating officer of CNW/WRPI,[1] his knowledge of Powder River Basin coal railroading; field trips by Mr. McDonald to observe BNSF's facilities and coal operations; and information provided by BNSF in response to Otter Tail's discovery requests. Mr. McDonald sponsog41

rs evidence in this proceeding showing that the operating plan developed for the OTRR would enable the OTRR to handle its peak-period traffic group efficiently and at minimal cost consistent with the principles of the STB's Guidelines.

BNSF goes to extreme lengths to belittle the operating plan developed by Otter Tail. BNSF's most basic complaint is its attack on the string diagram model.[2] BNSF's criticism on Reply echoes its mantra that Otter Tail's "inadequate" string diagram model produces nonsensical operating statistics which, in turn, completely invalidates the OTRR operating plan.[3]

Ignoring BNSF's rhetoric, Otter Tail's operating experts have carefully reviewed the original operating plan in light of the additional information presented by BNSF in its Reply and Supplemental Narratives and the substantive (as opposed to rhetorical) criticisms raised by BNSF's witnesses. Taking BNSF's evidence into account, Otter Tail's experts have concluded that, with the few minor adjustments to the OTRR's track configuration and operating parameters (which were

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1 As shown in detail in Section IV of Otter Tail's Opening, Mr. McDonald has considerable experience in planning, constructing, operating and maintaining railroad lines that carry millions of tons of traffic each year. Specifically, among his many accomplishments, Mr. McDonald was responsible for the successful, planning, construction and operation of the CNW/WRPI rail line into the PRB which was designed to handle unit coal train traffic.

2 See BNSF Reply at III.C-2.

3 See BNSF Reply at III.C-1 to III.C-2.

used as inputs in the string analysis), the operating plan is sound and workable. On the other hand, the OTRR is built from the ground up in a manner that incorporates the best modern railroad operating practices reflecting an efficient system designed to handle predominantly high-volume coal unit-train movements and limited non-coal overhaul trainload movements. BNSF's capacity experts and rail operations witnesses (Mr. Mueller and Mr. Wheeler) have been unable to shed the baggage of BNSF's existing system and methods of operations (developed over a period of more than a century). In short, the OTRR system and operating plan BNSF developed with the aid of the RTC model does not represent the least-cost stand-alone alternative.

BNSF's attack on the OTRR's operating plan centers around its criticisms of Otter Tail's string diagram model and the inputs that Otter Tail used in running the program to demonstrate the OTRR's capacity to handle its peak-year, peak-day traffic volumes and verify the feasibility of the OTRR's network. Otter Tail addressed BNSF's criticisms about the string model's inputs and outputs in Section III-B-4 above, and addresses the BNSF's criticisms about the model's internal operations and functions below.[4]

At the outset, it must be recognized that, contrary to BNSF's implications, Otter Tail's experts did not start with the string analysis in developing the OTRR system configuration, yard locations and sizes, and operating plan. Those aspects were developed by Otter Tail's experienced rail operations and engineering witness taking into account the OTRR's peak-day traffic and train counts, its limited traffic group, and realistic operating parameters such as crew change times and yard dwell times. After the basic parameters and configuration of the OTRR were established, Otter Tail's

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[4] The BNSF critiqued the inputs and outputs of the string diagram model in Section III.B of its Reply and Supplemental Reply Narratives, and the internal functions of the model in Section III.C of its Reply and Supplemental Reply Narratives.

experts then input them into the string diagram model which was used primarily to verify the OTRR's capacity and determine the extent to which specific adjustments were needed.[5] The output of the string diagram model produces the various operating statistics used to develop SARR capital and operating costs used in the DCF analysis. The string analysis, incorporating the criticisms in BNSF's Reply and Supplemental Reply, where valid, indicate that virtually no adjustments were needed in the OTRR track configuration.[6]

1. GENERAL PARAMETERS

Before responding to BNSF's specific criticism of the OTRR operating plan, it bears repeating that the OTRR is primarily a coal hauling railroad, all of which moves in unit trains between thirteen (13) PRB mine origins and interchanges with the RRVW and the residual BNSF, and one destination power plant (Otter Tail's Big Stone plant).[7] In addition to the 180 million tons of unit coal train traffic moved in the base year, the OTRR moves 21.2 million tons of non-coal traffic in unit train and trainload shipments in overhead, run-through service between four point pairs. The OTRR is designed and built from the ground up, and does not need many of the facilities BNSF uses to serve PRB coal traffic that moves over the lines being replicated by the OTRR. It provides limited I & I switching in Fargo and no other switching is required except to remove occasional bad-order cars at the OTRR's inspection locations of Donkey Creek and Glendive.

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5 See Otter Tail Opening at III-C-18 to III-C-20.
6 The adjustments to the OTRR's configuration made in this Rebuttal are discussed in Section III-B-2 above.
7 See, e.g., III-C-1 to III-C-3.

a. Traffic Flow and Interchange Points

i. Traffic Flow

The OTRR system and operating plans are designed to enable the efficient movement of the SARR's peak annual traffic volume. As presented by Otter Tail on Opening, the OTRR's base case annual traffic volume is 180.4 million tons of coal in 2002 and the peak annual traffic volume consisted of 205.1 million tons of coal in 2021.[8] In its alternative case, Otter Tail's base year 2002 coal tons equal 212.1 million tons growing to 241.3 million tons in 2021. The peak-day (in the peak year) train volumes in both the base and alternative case vary by line segment, with the heaviest in both volumes in both cases in the main-line corridor between Converse and Donkey Creek.[9]

On Reply, BNSF has modified the annual traffic volume for the base year to be approximately 112.3 million net tons of coal and 21.2 million tons of non-coal commodities (2002) and in the peak year 2021 to be approximately 125.5 million net tons of coal and 21.2 million net tons of non-coal.[10] In its Supplemental Reply, BNSF has further modified the annual traffic volume for the base year to be approximately 127.6 million net tons of coal and 7.5 million tons of non-coal commodities, and in the peak year 2021 to be 140.1 million net tons of coal and 7.5 million net tons of non-coal.[11] BNSF disputes the nature of Otter Tail's proposed base case and alternative traffic group for the OTRR, including the inclusion of crossover traffic and certain revenue assumptions, as discussed in Section III-A, but accepts the OTRR's PRB origins and the Big Stone plant destination.[12] BNSF's

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8 See Otter Tail Opening at III-C-2 to III-C-3.
9 See Otter Tail Opening at III-C-4, and Supplemental Opening at III-C-1.
10 See BNSF Reply at III.C-2 to III.C-4.
11 See BNSF Supplemental Reply at III.C-1 to III.C-2.
12 See BNSF Reply at III.C-4 to III.C-5.

specific modifications to Otter Tail's traffic are summarized in Section III-A of its Reply Supplemental Reply Narratives.

As explained in detail in Section III-A, Otter Tail rejects nearly all of the BNSF's proposed modifications to the OTRR traffic group. As explained in Section III-A-2 above, Otter Tail does agree that Z-Train traffic between Fargo and Snowden and 29 grain trains should be excluded from the OTRR's traffic group. As a result, the forecasted coal volumes for the OTRR, the peak-year traffic, and the peak-year train count presented by Otter Tail on Rebuttal are slightly smaller than those reflected in Otter Tail's Opening and Supplemental Opening Narratives.

On Reply, BNSF accepts the general operating assumptions Otter Tail utilized for the OTRR.[13] BNSF nonetheless attacks the OTRR operating plan (and related system configuration) as developed by Otter Tail on the basis of alleged defects in Otter Tail's string analysis, including in particular the operating assumptions developed by Otter Tail's expert that were input into the string model.

Specifically BNSF accepts in its Reply Evidence the following assumptions posited by Otter Tail: (1) that OTRR will own railcars only to the extent needed to serve shippers that do not today provide their own equipment and to supplement the shipper-provided cars; (2) that the OTRR will interchange unit trains with the residual BNSF at Converse, Donkey Creek, Moran Junction, Snowden, Mandan, Fargo and Benson; (3) that OTRR crews will operate in the crew districts identified in Otter Tail's opening evidence; (4) that train staging and servicing will occur at the yards identified by Otter Tail.[14] BNSF's Supplemental Reply Evidence also accepts these assumptions,

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13 See BNSF Reply at III.C-1.
14 See BNSF Reply at III.C-2.

except for OTRR's interchange at Snowden and the OTRR's crew district between Glendive and Snowden.[15]

ii. Interchange

On Opening, Otter Tail noted that OTRR originated coal traffic will be interchange forwarded to BNSF at Converse, Donkey Creek, Moran Junction, Snowden, Mandan, Fargo and Benson.[16] BNSF's Reply Evidence accepts all of the coal interchange points that were assumed by Otter Tail.[17] BNSF's Supplemental Reply accepts all the coal interchange points, except for Snowden.[18] Instead, BNSF would interchange this coal traffic at Glendive. BNSF notes, however, that coal traffic to should be interchanged to BNSF at the JY Connector near West Fargo rather than in Fargo as provided for in Otter Tail's Opening evidence. Otter Tail accepts this change in Rebuttal.

In Opening, Otter Tail also provided for interchange of non-coal overhead traffic with BNSF at Donkey Creek, Moran Junction, Terry, Snowden and Fargo. BNSF's Reply Evidence accepts each of these interchanges. BNSF's Supplemental Reply accepts these interchanges except for Snowden. As discussed in Section III-A above, BNSF's exclusion of re-routed non-coal traffic is incorrect and Otter Tail retains the Snowden Interchange.

In Opening, Otter Tail also provided for interchange of unit grain trains with the RRVW at Fargo. In Reply BNSF correctly points out that it actually receives loaded unit grain trains from

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15 See BNSF Supplemental Reply at III-C-2.
16 See Otter Tail Opening at III-A-9 to III-A-10.
17 See BNSF Reply at III.C-10.
18 See BNSF Supplemental Reply at III.C-3

RRVW at Casselton, located approximately 20 miles west of Fargo, rather than in Fargo. Otter Tail accepts this change in Rebuttal.

b. Trains and Equipment

i. Train Sizes

As presented on Opening, Otter Tail's operating plan for the OTRR provides for all trains to operate with two-person crews and distributed power ("DP").[19] In addition, Otter Tail's operating plan also provides for train sizes that are similar to those presently operated by BNSF for each customer in its traffic group.[20]

On Reply, the BNSF accepts Otter Tail's proposal for two-person crews, distributed power for loaded and empty unit coal trains and Otter Tail's train sizes for both coal and non-coal overhead trains.[21]

ii. Train Frequency

As stated in Opening, the OTRR will operate 24 hours per day, 365 days per year. At the outset, the Otter Tail's base case will originate an average of 12.2 trains per day at mines located between Converse and Reno.[22] Of these trains, 9.4 will move south to Converse for interchange to BNSF and 2.8 will move north to west to Benson and Fargo for interchange with BNSF.

In addition, the OTRR will originate an average of 7.5 trains per day at mines north of Reno and south of Donkey Creek. Of these trains, 4.0 will move north to Donkey Creek with 3.3 trains interchanged to BNSF (0.7 of these trains travel westbound for interchange with BNSF or

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19 See Otter Tail Opening at III-C-8 to III-C-9.
20 See Otter Tail Opening at III-C-9.
21 See BNSF Reply at III.C-11.
22 See Otter Tail Opening electronic workpaper "Peak Coal Trains.xls."

termination by the OTRR at Big Stone City).[23] The remaining trains travel south to Converse for interchange with BNSF.

An average of 10.1 trains per day will originate on the Eagle Butte Branch with 7.9 trains moving east to Donkey Creek for interchange with BNSF, 1.4 trains moving west for interchange with BNSF and 0.8 trains moving south to Converse for interchange with BNSF.[24]

An average of 3.7 trains per day originate on the Decker Branch. Of these, 0.9 trains move eastbound for interchange with BNSF at Donkey Creek and 2.8 trains move west for interchange with BNSF.[25]

An average of 1.0 trains and 0.8 trains originate on the Kuehn and Big Sky Branches respectively each day. All of these trains move east through Glendive to interchange with BNSF.[26]

In its alternative case, the OTRR will originate an average of 5.8 incremental trains per day from the Antelope, North Antelope and North Rochelle mines combined for delivery to Converse and interchange with the BNSF.[27] The OTRR will also originate an average of 0.2 incremental trains per day from the Dry Fork and Rawhide mines combined for delivery to Donkey Creek and interchange with the BNSF.[28]

As discussed in Section III-A, in its Reply and Supplemental Reply evidence, BNSF inappropriately eliminated 68.2 million net tons and 17.0 million net tons of coal, respectively, from

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23 Id.
24 Id.
25 Id.
26 Id.
27 See Otter Tail Supplemental Opening electronic file "Added2002Trains v3.0.xls," worksheet "2002 to 2021 Incremental Trains," Column BE.
28 Id.

the OTRR. For the reasons stated in Section III-A, Otter Tail rejects the elimination of this coal traffic and continues to rely on its base and alternative coal traffic groups in Rebuttal.

In its Opening and Supplemental Opening evidence, Otter tail indicated that it would handle 5.7 non-coal trains per day between Donkey Creek and Moran Junction, 1.3 non-coal trains per day between Moran Junction and Terry, 2.6 non-coal trains per day between Moran Junction and Fargo, and 21.2 non-coal trains per day between Snowden and Fargo. [29] In its Reply evidence, BNSF accepted all of Otter Tail's non-coal traffic, except for Z-train traffic moving between Fargo and Snowden and 29 grain trains interchanged at Carleton. In its Supplemental Reply evidence, BNSF continued its elimination of OTRR traffic and removed all non-coal traffic moving between Fargo and Snowden.

As discussed in Section III-A, Otter Tail accepts BNSF's Reply elimination of Z-Train traffic moving between Fargo and Snowden and its elimination of certain grain traffic, but rejects BNSF's removal of all other non-coal traffic moving between Fargo and Snowden. Table III-C-5 below shows Otter Tail's base case number of non-coal trains between each interchange location pair by direction and interchange.

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[29] See Otter Tail Opening electronic file "Peak Coal Trains.xls," and Otter Tail Supp. Opening III-C-3.

Table III-C-5
Non-Coal Overhead Trains by Interchange Pair – 2002

	Interchange Location (1)	Westbound Trains (2)	Eastbound Trains (3)
1.	Fargo/Snowden	2,866	2,566
2.	Fargo/Moran Junction	571	392
3.	Terry/Moran Junction	254	207
4.	Donkey Creek/Moran Junction	912	1,173

Source: Otter Tail Rebuttal electronic file "Non-Coal Overhead Trains - Rebuttal.xls".

iii. Locomotives

(a) Road Locomotives

Otter Tail's operating plan provides for the use of EMD Model SD-70MAC locomotives for road service and helper service. In addition, Otter Tail provides for three locomotive units in DP configuration for unit coal trains in both the loaded and empty direction.[30] Based on the Opening Errata, Otter Tail utilizes 93 SD70MAC road locomotives for unit coal trains and 15 SD70MAC locomotives for helper service.[31] In its Supplemental Opening, Otter Tail indicated that it would require three (3) additional SD70MACS. Non-coal trains operated in run-through overhead service will be powered by locomotives provided by BNSF. Based on the pool concept OTRR will provide sufficient locomotive units to cover the locomotive requirements of the non-coal traffic on the OTRR system. The OTRR provides three General Electric GP Dash 9 ("C44-9") locomotives for all non-coal overhead trains and leases a total of 45 C44-9 locomotives for these trains.

30 See Otter Tail Opening at III-C-5 to III-C-6.
31 See Otter Tail Opening Errata electronic worksheet "Otter Tail_opr_Exp.123."

On Reply, BNSF accepts the use of the SD70MAC locomotive for road service and helper service and the use of C44-9 locomotives for non-coal overhead trains. BNSF also accepts Otter Tail's proposal to use three locomotives in DP configuration for both loaded and empty unit coal trains and three C44-9 locomotives for non coal overhead trains. BNSF asserts, however that the OTRR needs substantially more road locomotives to handle its peak-period traffic.[32] BNSF claims that Otter Tail's approach to determining the sufficient number of locomotives is flawed because it relies on an allegedly flawed string program, uses an incorrect spare margin, and fails to account for the volume of traffic moving over the OTRR during peak periods.[33] Each of BNSF's claims regarding the number of locomotives required is addressed in Section III-C-2 and III-C-3, infra.

On Rebuttal, Otter Tail continues to utilize the same methodology to calculate the necessary number of road service and helper locomotives necessary for OTRR coal traffic. Because of minor adjustments to the inputs to the string model and the change in non-coal traffic group, the total number of road service and helper locomotives needed for OTRR service in the base case has changed from the 108 SD70MAC and 45 C44-9 road locomotives in Opening Errata to 141 SD70 MAC and 47 C44-9 locomotives in Rebuttal. In Otter Tail's alternative case, the number of SD70 MAC and C44-9 change to 152 and 47, respectively. The details of the calculation of the number of locomotives are shown in Exhibit III-C-3 to this Rebuttal.[34]

(b) Use of Run-through Power

On Opening, Otter Tail assumes that all of OTRR's unit train coal traffic that is interchanged to other railroads for movement to final destination will be handled in "run-through" service which

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32 See BNSF Reply at III.C-63 to III.C-69.
33 Id.
34 The calculation is also shown in Otter Tail's Rebuttal electronic workpaper "Exhibit III-C-3.xls."

provides that locomotives not be removed from a train by either railroad at the interchange point but will stay with the train to destination. In its Reply, BNSF accepted Otter Tail's proposal to use run-through power with one exception.[35] Because BNSF and RRVW do not operate trains in run-through service, the OTRR will provide its own power for the loaded unit grain trains it receives from the RRVW in Casselton and moves to Snowden for interchange with BNSF. This power will remain with the unit grain trains while on BNSF as the OTRR and BNSF operate in run-through service. OTRR crews and power from these grain trains will travel light from Fargo to Casselton to receive the trains from RRVW in interchange. In a similar fashion, after empty grain trains are delivered to the RRVW at Casselton, the OTRR crews and power will travel light to Fargo to go off duty.

(c) Helper Locomotives

On Opening, Otter Tail's operating expert concluded that, given the liberal use of the DP concept on the OTRR, loaded OTRR trains require helper service at only four locations, these include: 1) Belle Ayr to Donkey Creek; 2) Clearmont to Parkman; 3) the Eagle Butte Branch; and 4) the Decker Branch.

BNSF accepts Otter Tail's designation of helper service at these four locations and claims that helper service is required at one additional location, i.e., Glendive to Fryburg. The basis for BNSF's claim is 1) a statement that it currently provides helper service at this location, and 2) that it has confirmed the need for helper service by running an actual test of a loaded coal train over this

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35 See BNSF Reply at III.C-14.

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segment.[36] BNSF indicates that the test consisted of a loaded coal train consisting with three SD70 locomotives in DP configuration and a total train weight of

To evaluate the support for BNSF's claim for the existence and the need for helper service between Glendive and Fryburg, Otter Tail examined the train files BNSF provided in discovery which include information regarding the number of locomotives, cars, train weight and horsepower for all trains between stations. Specifically, Otter Tail examined loaded coal trains moving from the PRB to Superior, Wisconsin in 2002.

moved from Glendive to Superior with only three locomotives.[37] Glendive with more than three locomotives and of these trains had the extra locomotives removed at Fryburg. The remaining trains with greater than three locomotives had the extra locomotives removed at various locations along the route, leading one to conclude that the additional locomotives were merely being located to another point on the BNSF system.

Further, the trains with only three locomotives and the trains with more than three locomotives are nearly identical in terms of average number of cars and total weight. Trains with only three

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36 See BNSF Reply at III.C-15. BNSF's cites a workpaper BNSF.RP.WP.III-C-005 as support for its statement that the Glendive to Fryburg helper service currently exists. This workpaper provides the specifics of the claimed helper service and is the same as a document that was sent to Otter Tail's counsel on September 29, 2003, just nine days prior to the submission of BNSF's Reply evidence. The cover letter to this document explains that BNSF inadvertently omitted this document in response to Otter Tail's discovery requests related to helper service and is providing it at this time. Assuming for the moment that the Glendive to Fryburg helper service actually exists, why would BNSF need the second support for its claim, i.e., that they performed a test to determine the need for helper service in this area?

37 See Otter Tail Rebuttal electronic workpaper "Fryburg.xls."

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Based on Otter Tail's review of BNSF's train data, provided by BNSF in discovery, one can only conclude that eastbound loaded coal trains leaving Glendive do not require helper service to Fryburg. Rather in some few instances, BNSF may have more than three locomotives on the train for its operating convenience. As BNSF's train data shows that it does not provide Glendive to Fryburg helper service for heavy eastbound coal trains, Otter Tail has not added the Glendive to Fryburg helper service in rebuttal.

In addition to BNSF's claim that helper service must be added for loaded eastbound coal trains between Glendive and Fryburg, BNSF states that "One additional helper consist (made up of two SD70 locomotives) is required at Dutch."[39] BNSF explains the need for two helper consists operating between Clearmont and Parkman because the round trip distances over which the helper consists must operate do not permit the helpers to serve a second train for several hours. BNSF fails to recognize that Otter Tail calculates the number of helper locomotive consists based on those required to provide service to the trains included in its string analysis for the peak period. In doing so, Otter Tail provides for a total of nine helper consist and 21 helper locomotives[40] (excluding helper service between Glendive and Fryburg), compared with 8 consists and 14 helper locomotives

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38 Id.
39 See BNSF Reply at III.C-16.
40 See Otter Tail Rebuttal electronic workpaper "Exhibit III-C-3.xls."

provided by BNSF. Otter Tail continues to rely on its method of determining the number of helper consists and locomotives it used in Opening.

(d) Switch Locomotives

On Opening, Otter Tail's operating experts determined that a total of four switch locomotives (1 locomotive for switching service and 1 locomotive spare at each location) stationed at both Donkey Creek and Glendive would be adequate for the efficient operation of switching service on the OTRR.[41] The switching function on the OTRR includes (1) removing bad-order cars from trains (following FRA inspections); (2) moving repaired cars to and from the spare car storage tracks; and (3) inserting spare cars into trains as necessary.[42]

On Reply, BNSF accepts the use of two SD40 locomotives at Donkey Creek (one use for switching and one for a spare). BNSF also accepts the use of two SD40 locomotives at Glendive for switching, however, BNSF uses one for switching bad order cars and one for providing the I&I switching services described in Section III-B-3.

As discussed in Section III-B, Otter Tail accepts the need to provide I & I switching service, but determines to provide this service at Fargo. As a result, in Rebuttal, Otter Tail includes six SD40 locomotives for switching service, with two each at Donkey Creek, Glendive and Fargo. At each location, one locomotive provides the switching service and one locomotive is used as a spare.

(e) Work Train Locomotives

On Reply, BNSF argues that the OTRR will require four work trains on a year-round basis.[43] According to the BNSF, one SD40-2 locomotive will be required for each work train.[44]

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41 See Otter Tail Opening at III-C-16.
42 Id.
43 See BNSF Reply at III.C-18.
44 Id.

In Section III-D-4.b.(iv) of this Rebuttal, Otter Tail demonstrates that the work trains proffered by BNSF's Witness Mr. Albin are not necessary or justified. Additional locomotives dedicated to handle only work trains in no way facilitates the least cost or the efficient operation of the OTRR. The OTRR has a sufficient number of locomotives in its total fleet count to handle work train assignments. In fact, included in the total OTRR locomotive fleet are spares stationed at the Donkey Creek, Glendive and Fargo yards. Furthermore, any additional work train locomotives required by OTRR operations will be provided by the maintenance-of-way contractor. On Rebuttal, Otter Tail does not include these unnecessary additional locomotive costs related to work trains.

iv. Railcars

This section addresses only those railcars that OTRR would be required to purchase for use by its customers. As with road locomotives, the number of railcars required to enable the OTRR to handle its peak-period traffic is a function of the transit times produced by the parties' respective computerized capacity models.

(a) Coal Cars

Otter Tail's Opening Errata projected that the OTRR would need a total of 500 coal cars.[45] Otter Tail would provide primarily gondola-type cars with rotary couplers and some bottom-dump open hopper cars for eight specific OTRR customers.[46] Based on its supplemental opening traffic group, Otter Tail determined it would need one (1) additional coal car.[47]

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45 See Otter Tail Opening Errata electronic file "Exhibit III-C-1.xls."

46 See Otter Tail Opening at III-C-17. These utilities include Xcel Energy (High Bridge), Detroit Edison (River Rouge and Trenton Channel), Export Coal (Robert's Bank), Reliant - HL&P (Parrish), Midwest Energy (Lake Superior Coal Terminal), Archer Daniels Midland (Walhalla), AEP (Welsh) and Consumer's Electric (Whiting and Campbell).

47 See Otter Tail Supplemental Opening at III-C-3.

On Reply, BNSF asserts that the OTRR will require a total of 1,692 coal cars in 2002 to provide the service it proposes, and, on Supplemental Reply, asserts that an additional 31 incremental coal cars are required.[48] BNSF claims that Otter Tail's approach to calculating coal railcar requirements is flawed because: 1) it is based on unrealistically short cycle times that are computed by the Otter Tail string diagram model; 2) Otter Tail failed to account for the volume of traffic moving over the OTRR in the peak period; and 3) Otter Tail misidentified the coal shipments for which BNSF provides railcars. Each of BNSF's claims regarding the number of coal railcars required is addressed in Section III-C-2-vii, infra.

(b) Non-Coal Cars

As described in Otter Tail's Opening Narrative, the OTRR will pay a pro-rata share of the cost of the railcars needed for non-coal movements traversing the OTRR.[49] When cars are provided by another railroad the OTRR will pay the appropriate time and mileage charges while the cars are on its system. For railcars provided by shippers in non-coal service, the OTRR pays a mileage allowance for each car type derived from the data reported by BNSF in its R-1 Annual Report to the STB.

While BNSF agrees with Otter Tail's approach, it does not agree with how Otter Tail has determined the applicable car hire rates. This issue is fully addressed in section III-D-2.

2. CAPACITY AND CYCLE TIME

BNSF claims that Otter Tail's string diagram model contains a series of defects that cause it to improperly model train movements and therefore calculate inaccurate train times and operating statistics.[50] BNSF claims these defects include:

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48 See BNSF Reply at III.C-18, and BNSF Supplemental Reply at III.C-15.
49 See Otter Tail Opening Errata electronic workpaper "OTRR Car Costs.123."
50 See BNSF Reply at III.C-21.

a. The string model calculates physically impossible acceleration rates;

b. The string model contains inaccurate speed limits;

c. The string model trains experience impossible speed fluctuations; and

d. The string model does not account for all mine loading times and train delay times incurred on the OTRR.

Like the vast majority of the claims BNSF made about Otter Tail's string diagram model program in section III.B of its Reply and Supplemental Reply Narratives, and addressed by Otter Tail in section III-B above, the overwhelming majority of the claims BNSF makes in Section III.C of its Reply and Supplemental Reply Narratives about the string diagram model are nothing more than unsupported allegations, which are contradicted by its own Reply Narrative or incorrect interpretations of data.

a. Otter Tail's String Diagram Chart Does Not Produce Physically Impossible Acceleration Rates

BNSF asserts that Otter Tail's string diagram program calculates physically impossible train acceleration rates because it overstates the tractive effort available for the OTRR trains and understates the resistances encountered.[51] BNSF basis its claims on analysis of the tractive effort and train resistance equations contained in the string diagram model. Specifically, BNSF claims that the string diagram model:

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[51] See BNSF Reply at III.C-22. It is unclear whether BNSF is claiming that Otter Tail's string model is allegedly calculating physically impossible acceleration rates as it contends in the header of its Reply Evidence for this section, or claiming that the model calculates impossible transit times as it states on page III.C-22. Otter Tail assumes that BNSF is asserting the former, i.e., allegedly impossible acceleration rates.

- Overstates the tractive effort available for Dash-9 locomotives traveling less than 10 miles per hour, and the tractive effort available for SD70MAC locomotives traveling greater than 10 miles per hour;
- Does not take into consideration, or understates, train weight in developing certain resistence statistics, understates train weights in grade and curve resistance equations, and misinterprets grade information;
- Does not account for starting resistance, and understates curve resistance; and
- Incorrectly assumes all car types experience the same levels of air resistance.

While some of BNSF's do have merit, the majority do not as discussed below.

Before addressing BNSF's criticisms, as threshold a matter, Otter Tail must point to two salient facts about BNSF's testimony. First, nowhere in this or any other section of its Reply testimony does BNSF perform a tangible comparison of acceleration rates produced by Otter Tail's string diagram, and rates produced by any other train simulation model, even the RTC model. Nor does BNSF attempt to even calculate acceleration rates based upon the equations included in Otter Tail's string diagram program. Instead it just relies upon rhetoric. Second, the only reason BNSF was able to examine and comment on the algorithms and equations used in Otter Tail's string diagram model is due to Otter Tail fulfilling its obligation under ICC and STB precedent by providing an uncompiled version of its program as part of Otter Tail's evidence. Conversely, BNSF did not fulfill this obligation in its filing.

i. Train Tractive Effort

BNSF claims that Otter Tail's string diagram program overstates the tractive effort available to Dash-9 locomotives traveling less than 10 miles per hour, and for SD70MAC locomotives

traveling more than 10 miles per hour.[52] With regard to the Dash-9 locomotive tractive effort, BNSF attempts to support its claim by comparing tractive effort statistics (generated using the equations in Otter Tail's string program), to a chart found in BNSF's undocumented RTC model. BNSF claims that the RTC-produced chart contains actual tractive effort figures for a Dash-9 locomotive. In actuality, BNSF has provided no documented proof that the alleged Dash-9 tractive effort figures it provided are correct or representative of Dash-9 locomotives. On the other hand, the equation Otter Tail's string diagram uses to generate its Dash-9 tractive effort is a documented fact.[53] Because BNSF has provided no evidence that its information is correct, Otter Tail continues to rely on its opening equation to develop tractive effort values.[54]

With regard to SD70MAC locomotives, Otter Tail reviewed its tractive effort equations and agrees that it inadvertently assumed 4,400 horsepower on SD70MAC locomotives, and not 4,000 horsepower. While Otter Tail has adjusted its rebuttal string program to use 4,000 horsepower when developing SD70MAC tractive effort, Otter Tail does not necessarily agree with BNSF's claim that SD70MAC locomotives cannot achieve the tractive effort Dash-9 locomotives can at speeds of greater than 10 miles per hour.[55] BNSF's workpapers show that, at lower throttle settings, SD-70MAC locomotives do produce greater tractive effort than Dash-9 locomotives at speeds higher than 10 miles per hour.[56]

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52 See BNSF Reply at III.C-22.

53 See Otter Tail Rebuttal workpaper Vol. III, pp. 5868 to 5870.

54 BNSF utilizes the same tractive effort equation as used in the string diagram model in its Reply evidence in developing tractive effort statistics for the trains with helper service. See BNSF Reply electronic workpaper "BelleAyr_HelperService_Analysis.xls," cell J27.

55 See BNSF Reply at III.C-22, note 32.

56 Compare the Run 1 tractive effort figures for SD70MAC locomotives in BNSF Reply electronic workpaper "SD70MAC forces data.ppt" to the Run 1 Dash-9 tractive effort forces in BNSF Reply electronic workpaper "dash-9 tractive effort.ppt." These locomotive tractive effort tables were taken from BNSF's undocumented RTC model, so there is no way to confirm if they are correct. However, assuming, arguendo, they are correct,

ii. Train Weight and Reverse Grade Statistics

BNSF asserts that Otter Tail did not take into consideration the weight of the train when developing rolling, train speed and air drag resistance, nor did it include the weight of the locomotives when determining total train weight for developing grade and curve resistance statistics.[57] BNSF also claims that Otter Tail's string program assumes trains traveling in the opposite directions on the same section of track utilize the same grade information. Otter Tail has reviewed BNSF's claim, agrees these changes should be made, and has done so in its rebuttal string diagram program.[58] However, once again, Otter Tail has not been given the chance to verify how BNSF's RTC model calculates train resistance and grade statistics, and has had no opportunity to verify the equations utilized by BNSF in the RTC model. There is no way to know what flaws exist in the RTC equations and algorithoms.

iii. Starting and Curve Resistance

BNSF claims that Otter Tail's string program does not take into consideration starting resistance in its string diagram model, and understates curve resistance by 90 percent on curves greater than 2 degrees.[59] Otter Tail has reviewed both claims, and had found both are incorrect.

With regard to BNSF's claim about starting resistance, as Otter Tail showed in its Opening Workpapers, it is utilizing a Modified Davis equation to calculate journal, rolling, train-speed and air drag resistance.[60] The journal resistence portion of the Modified Davis equation does not include train speed as a variable, and therefore accounts for any resistance encountered during train starts.

BNSF's claim is incorrect.

57 See BNSF Reply at III.C-23 and III.C-24.

58 See Otter Tail Rebuttal electronic workpaper "OTTER_TAIL_STRING_REBUTTAL.RTF" lines 3710 and 3819.

59 See BNSF Reply at III.C-23 and III.C-25.

60 See Otter Tail Opening workpapers Vol. v, p. 2529.

Because Otter Tail's string program already accounts for starting resistance, Otter Tail rejects BNSF's claim.

With regard to BNSF's claim that Otter Tail understated curve resistance by 90 percent on curves greater than 2 degrees, Otter Tail explained in its Opening Evidence at page III-F-39 that it installed automatic in-gauge rail lubricators on all track with curvature greater than 2 degrees. The AREMA for Railway Engineering states that tests have shown that the use of rail lubrication will "practically eliminate curve resistance on curves up to 9 degrees."[61] Given the OTRR's use of rail lubrication, and the impact this has on curve resistance, Otter Tail rejects BNSF's claims that it understated curve resistance.

iv. Air Drag Resistance

BNSF claims that Otter Tail's string diagram model does not take into consideration the differing air drag coefficients of different types of railcars, and as such, understates air drag resistance.[62] While BNSF is technically correct that the string diagram model utilizes the same air drag coefficient for all car types, BNSF ignores the fact that the air drag factor used by Otter Tail is a conservative coefficient because it is greater in magnitude than the air drag coefficients BNSF used in its RTC model simulations.

Otter Tail's string program assumes that the air drag coefficient for railcars traveling on the OTRR is 5.5.[63] As shown in Otter Tail's opening workpapers, most railcar types, including the majority that travel on the OTRR, have air drag coefficients of less than or equal to 5.5, including

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61 See Otter Tail Opening workpapers Vol. V, p. 2531.
62 See BNSF Reply at III.C-24.
63 See Otter Tail electronic workpaper "OTTER_TAIL_STRING_REBUTTAL.RTF" lines 1165, 1313, 1977, 2132, 3694 and 3841.

loaded coal cars (4.2), box cars (4.9), tank cars (5.5) and TOFC/COFC (5.0).[64] Otter Tail's use of an air drag coefficient factor of 5.5 provides an appropriate estimate of air drag resistance.

Moreover, the air drag coefficient Otter Tail used is larger in relative magnitude than any railcar air drag coefficient used by BNSF in its flawed RTC simulations. Otter Tail has included in its Rebuttal workpapers extracts from BNSF's RTC simulations showing the air drag coefficients it assumed in its flawed models ranged from 4.8 to 5.3, all less than Otter Tail's value of 5.5.[65]

b. The OTRR Utilizes Realistic Speed Limits

BNSF claims at pages III.C-25 and III.C-26 that Otter Tail ignored speed limits imposed by municipalities that would be applicable to the OTRR, and that Otter Tail's use of average speed limits in its string diagram model cause unrealistic short transit times.[66] BNSF also claims that Otter Tail ignores the effects that actual changes in speed limits have on the movement of trains across the system. Both of BNSF's claims are unsupported by evidence as will be discussed below.

As Otter Tail explained in its Opening Evidence at page III-B-13, Otter Tail's operating witness Mr. McDonald based the OTRR's speed limits on the construction specifications of the stand-alone railroad and the topography of the OTRR route, and any speed restrictions applicable to the OTRR.[67]

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64 See Otter Tail Opening workpapers Vol. v, p. 2529. Otter Tail's workpaper also shows that, contrary to BNSF's claim at III.C-24, its air drag coefficient of 5.5 does appear in Otter Tail's workpapers.

65 See Otter Tail Rebuttal workpapers Vol. III, pp. 5871 to 5878. The BNSF's air drag coefficients are shown in the RTC model at 1/10,000 the value shown above due to the RTC model's apparent use of a different formulation of the Davis equation than that used by Otter Tail. See Otter Tail Opening workpapers Vol. 4, p. 2528, for a description of the different form of the Davis equation. Once again, Otter Tail is having to guess that this is the reason the air drag coefficients are different since BNSF failed to provide documentation for the RTC model, or an uncompiled version for Otter Tail's inspection.

66 See BNSF Reply at III.C-25 to III.C-26.

67 Otter Tail's OTRR speed limits are contained in Otter Tail Opening Workpaper Vol. 4, pp 2547 to 2548. These workpapers show that the OTRR speed limit is restricted many times along its route, in many cases well below the OTRR's maximum speed of 60 miles per hour.

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BNSF claims that in preparing the speed limits for the OTRR, Otter Tail failed to include speed restrictions imposed by municipalities on the incumbent BNSF. The simple fact is that BNSF has provided no proof that any municipality along the OTRR route has imposed any speed limit on the BNSF. BNSF's only support for its claim is its time tables which make no reference to municipally imposed speed restrictions.

Additionally, BNSF's own train movement data shows that BNSF routinely exceeds the maximum speeds BNSF indicates govern along the OTRR route. For example, Otter Tail reviewed

This demonstrates that BNSF frequently runs its trains faster than the posted speed, and exceeds any municipal speed limits, if they even exists at all.[71]

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68 See Otter Tail Rebuttal electronic workpaper "Casselton to Mandan Speeds.xls." As described in Section III-A above, Z Trains are highspeed intermodal trains that BNSF claims are the highest priority of freight trains operating on the BNSF's system.

69 See BNSF Reply electronic workpaper "Speed Limits.xls", worksheet "Jamestown." These are the same speed limits BNSF used in its flawed simulation of the Fargo to Snowden route segment.

70 See Otter Tail Rebuttal electronic workpaper "Casselton to Mandan Speeds.xls," worksheet "Summary."

71 Based on BNSF's critique, Otter Tail investigated the speed limits BNSF claims are applicable to the OTRR. While as described above it is apparent that BNSF operates its trains well above any supposed speed limits, Otter

BNSF also claims that Otter Tail's use of average speed limits understates OTRR transit times. As a basis for its claim, BNSF compared average transit times produced by BNSF's RTC model, using what BNSF claims are actual speed limits, and Otter Tail's string diagram model, which BNSF claims uses average speed limits.[72] BNSF asserts that the RTC model shows, when actual changes in speed limits are taken into consideration, that transit times are lower than Otter Tail's string diagram transit times. BNSF's claim must be disregarded because, as explained in Section III.B, BNSF's RTC model simulations are flawed and contain inaccurate inputs. One major flaw discussed earlier, BNSF's under powering the simulated locomotives, is clearly visible in the exhibit BNSF offered in an attempt to support its claim. As BNSF Reply Exhibit III.C-8 shows, the RTC model assumes that the SD70MAC locomotives used on this train average only 3,391 horsepower, and not the 4,000 horsepower the locomotives actually produce.[73] The likely reason for the difference in transit times is not Otter Tail's use of speed limits, but BNSF's flawed RTC simulation.[74]

c. Otter Tail's String Diagram Model Does Not Experience Impossible Speed Fluctuations

BNSF claims that Otter Tail's string diagram model experiences rapid and physically impossible changes in speed.[75] BNSF's claim is incorrect because it is based on a faulty analysis.

Tail has identified two locations on the Sidney subdivision which warrant additional at grade crossing protection due to OTRR's operating speeds. OTRR has included this additional investment in its Rebuttal electronic workpaper "OTRR FRA Crossings Rebuttal.xls."

72 See BNSF Reply at III.C-26.

73 16,956 train tons x 0.60 horse power to ton ratio ÷3 SD70MAC locomotives = 3,319 horsepower. See BNSF Reply electronic workpaper "coal tpc comparison.ppt."

74 BNSF also uses a very liberal definition of the term "average" in its argument. For instance, BNSF states, "Otter Tail restricted trains to an average speed limit of 50 mph over the entire segment." BNSF Reply at III.C-26. What BNSF does not state is that the maximum speed for loaded coal train is 50 mph, and, therefore, the average equals the maximum. BNSF's statement would lend one to believe that Otter Tail has constructed an artificial "average" speed limit for this section of track, but that is not the case. Otter Tail trains can operate the maximum speed allowed consistent with OTRR's operating plan.

75 See BNSF Reply at III.C-27.

The basis for BNSF's claim is the graph contained in BNSF Reply electronic file "speeds-L-CATMALM133 (Erratic Speeds).xls," and reproduced, in part, in BNSF Reply Exhibit III.C-5. BNSF claims this exhibit is a graphical representation of train speeds experienced by a train in Otter Tail's string diagram model. As discussed in Section III.B-4 above, BNSF incorrectly utilized an inconsistent time scale when developing its graphs that make the trains appear to have widely fluctuating speeds. For example, the graph on page 1 of BNSF Reply Exhibit III.C-5 shows a vertical line on, or about, elapsed time marker 1:40:48. The vertical line in this graph makes it appear as if the train came to an instantaneous stop at that referenced time. However, inspection of the time reference just to the right and left of 1:40:48 shows that the preceding time marker is 1:23:27, an approximate 17 minute difference, while the succeeding time marker shows 1:42:14, or an approximate difference of 1.5 minutes. What BNSF has done is compress or elongate the time statistics to make it appear as if trains are stopping and starting instantaneously, or experience widely fluctuating speeds. Otter Tail has included in its electronic workpaper a file that corrects BNSF's time compression errors, and displays BNSF's graphs on a consistent time basis.[76] The results of this correction show that, far from seeing wild fluctuation in speeds, Otter Tail's string model produces reasonable changes in speed.

d. Transit, Loading and Delay Times

BNSF asserts that Otter Tail's assumption that six (6) hours would be consumed loading trains at the mines is inconsistent with Otter Tail's string program, which shows trains dwelling at mines for "significantly loner periods of time."[77] Also, BNSF contends that Otter Tail's string model

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[76] See Otter Tail Rebuttal electronic file "(Erratic Speeds) - Fixed.xls."
[77] See BNSF Reply at III.C-28.

program only accumulates in its aggregated service hours file the presumptive six hour mine loading time for empty coal trains moving in the non-prevailing direction, and fails to accumulate the loading time for empty coal trains moving in the prevailing direction, for empty coal trains traveling to the Black Thunder and Jacobs Ranch mines, and for all loaded coal trains.[78] Finally, BNSF states that Otter Tail's string model does not include in its aggregated service times all delay and dwell times incurred by OTRR trains. [79] As with its previous claims about the string model program, BNSF has misrepresented and overstated its claims, and continues to misinterpret the string diagram process.

BNSF's assertion that Otter Tail's assumption that six (6) hours would be consumed loading trains at the mines is inconsistent with Otter Tail's string program, which shows trains dwelling at mines for what BNSF claims are long periods of time is just a repeat of BNSF's linking argument discussed in Section III.B-4.g, above. As explained by Otter Tail, the "disconnect" perceived by BNSF is only due to the requirement that the string analysis begins with the actual loading time for each train. BNSF's analysis (which starts with the beginning of the empty cycle for each train) ignores the actual loading time, which creates exactly the same disconnect as Otter Tail's analysis (albeit for the off-line railroad), and creates the same type of disconnect between loaded and empty trains at Otter Tail's Big Stone Station.[80]

As for BNSF's claim that the string diagram model does not account for loading times on many of the OTRR trains, BNSF has once again misrepresents and overstates the alleged flaws. BNSF blithely claims that "...the string program service units file ignores mine loading time for 86% of the

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78 See BNSF Supp. Reply at III.C-8.
79 See BNSF Supp. Reply at III.C-9
80 As discussed above, BNSF's analysis also has a disconnect between the Snowden-Glendive-Fargo and Gillette-Converse segment.

loaded coal trains dispatched on the OTRR's peak day . In short, the string program does not accumulate mine loading time for *any* of the 64 loaded coal trains dispatched on the OTRR's peak day" (emphasis original).[81] BNSF has made this claim in an attempt to portray the string model program as dramatically understating train cycle times and aggregated service The simple fact is that the string program accounts for mine loading time by adding the required time to empty portion of the movement, and not the loaded portion. BNSF clearly understands this point, and even states so in its Supplemental Reply evidence, "[m]ore precisely, the string program accumulates mine loading time only for empty coal trains ..."[82] Under BNSF's presumptive method, mine loading times would be added to both loaded and empty trains, leading to a double-count of mine loading time.

BNSF also claims that the string diagram model errs because it only aggregates mine loading times for empty coal trains moving in the non-prevailing direction. BNSF states that only 12 empty coal trains moving in the non-prevailing direction arrived at the mines on the OTRR's peak day, of which, only nine (9) of the trains had their hours accumulated due to an additional error in the string model's route file.[83] These errors combine, according to BNSF, to lead the string model to ignore loading times for 55 of the 64 loaded trains, or 86 percent, dispatched on the peak day. [84] Once again, BNSF has overstated and attempts to misrepresent the issue. Of the 64 loaded coal trains that were dispatched on the peak day, 16, or 25 percent, were dispatched before 6:00 am, meaning that the empties that proceeded these trains arrived the day before the peak day, and are therefore outside the peak day period during which service units are aggregated.[85]

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81 See BNSF Supp. Reply at III.C-9.
82 Id.
83 See BNSF Supp. Reply at III.C-8.
84 Id.
85 See BNSF Supplemental Reply File ""List of Trains by direction and type.xls." Because the string model adds six (6) hours of loading time, any loaded dispatched prior to 6:00 am would have arrived empty the day before.

Also, BNSF utilizes Otter Tail's use of actual mine dispatch times to spin its analysis. As BNSF's supplemental electronic file "List of Trains by direction and type.xls" shows, 64 loaded coal trains were dispatched on the OTRR's peak day, but only 41 empty coal trains were dispatched. This apparent disconnect is due, once again, to Otter Tail combining actual real-world mine dispatch times with more efficient stand-alone railroad transit times. Because Otter Tail adds loading time to the empty portion of the cycle and not the loaded portion, which in this instance has a greater number of trains, the apparent disconnect between loaded and empty train arrival and dispatch times makes it appear as if Otter Tail has significantly understated its train hours.

Otter Tail has reviewed BNSF's claims about the string model failing to add loading times for empty coal trains moving in the prevailing direction, and to trains loading at the Black Thunder an Jacobs ranch mines, and found that the BNSF was correct. To eliminate any additional quibbling by the BNSF about the what hours are, or are not, included in the string diagrams service unit file, Otter Tail has made two refinements to its summary of the string model program. First, it has adjusted its program to include mine loading times for all empty coal trains.[86] Second, Otter Tail has undertaken a reconciliation of its transit times, loading hours and delay times produced by the string model program, and bases its service unit calculations on this reconciliation.[87] The reconciliation combines elapsed transit times, loading times and other applicable dwell times to confirm that all portions of the OTRR cycle times are accounted for.

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[86] See lines 2358, 2365, 3960 and 3962 in the Otter Tail String Program "OTTER_TAIL_STRING_REBUTTAL.RTF".

[87] See Otter Tail rebuttal electronic file "Service Hours Reconciliation (Base Case).xls".

i. Comparison of OTRR Transit Times to Historical BNSF Data

As described in Otter Tail's Opening Evidence at Section III-C-3, Otter Tail's cycle times were obtained from Otter Tail's string diagram model. In its Reply and Supplemental Reply, BNSF used a combination of RTC generated transit times and real world BNSF coal transit times to develop its OTRR cycle time data. BNSF was required to use both simulated OTRR transit times and real world BNSF transit times because it did not model the entire OTRR system, and therefore, did not develop complete OTRR specific cycle times. BNSF's methodology for developing OTRR cycle times is flawed. By comparing the OTRR string model results to actual transit times, BNSF once again ignores the fact that the SAC principles do not require a complainant's stand-alone railroad to mimic the existing operations of the defendant.

As stated above, for the OTRR line segments that BNSF chose not to simulate, BNSF used "alternative transit times" by providing fourth quarter 2002 actual BNSF transit times as a "surrogate."[88] BNSF's use of actual transit time data is flawed due to the substantial differences in the BNSF's and the OTRR's operating plan and traffic mix. As shown in its Reply workpapers, BNSF provides coal trains with one of the lowest dispatch priorities for trains operating on its system, resulting in longer BNSF coal train cycle times.[89] On the OTRR, coal is given equal dispatch priority, which is reflected in its shorter transit times than BNSF's transit times. The mix of traffic moving on the BNSF also impacts its coal train transit times. Local and passenger trains, which the OTRR system does not have, impact BNSF's operations and result in higher coal train transit times. BNSF admits to the differences in the two operations, stating "OTRR trains could achieve somewhat

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88 See BNSF Reply at III.C-54.
89 See BNSF Reply workpaper BNSF/OTP00205.

faster transit times than real-world BNSF trains. Therefore, it would not be appropriate to use BNSF's actual transit times."[90]

Once again BNSF attempts to impute its inefficient operating practices on a hypothetically efficient stand-alone railroad. This is contrary to SAC principles.[91]

ii. Comparison of Otter Tail and BNSF Delay Times

For several of the delay times utilized by Otter Tail, BNSF has utilized the same values.[92] These include: Six hours for loading at origin, six hours for unloading at Big Stone, 15 minutes for crew changes throughout the OTRR system and one hour for westbound non-coal trains at Donkey Creek. For other delay times, including empty coal train inspection times at Glendive and Donkey Creek and interchange times, BNSF has overstated the time required as is discussed below.

(a) Empty Coal Trains in Donkey Creek and Glendive Yards

In Otter Tail's Opening evidence, an allowance of two hours was included for each empty coal train at Donkey Creek and Glendive Yards.[93] This allotted time, based on the efficient operations designed by Otter Tail's operating witness, is sufficient to perform all of the duties required by the OTRR.

The BNSF states that six hours are required for empty coal trains based on the assumptions of BNSF's witness Mr. Mueller. Mr. Mueller's assumptions are based on his experience or his notes

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90 See BNSF Reply at III.C-56.
91 See TMPA at 76 and WPL at 72.
92 See BNSF Reply at III.C-28 to III.C-50.
93 See Otter Tail Opening at III-C-21.

of the operations at the BNSF's Alliance yard.[94] Further, Mr. Muller assumes that all functions performed in Donkey Creek Yard must be done sequentially.

The OTRR will not operate as the BNSF does at Alliance Yard. BNSF's operating philosophy for moving (and holding) coal trains in yards is different than that planned for the OTRR. BNSF "holds" trains intentionally and call it "dwell" time. As pointed out by the Board in *TMPA*, referring to the SARR's dwell time in Guernsey Yard, "We are not persuaded that GCRR's Guernsey yard would need to function in the same fashion as do BNSF's Guernsey or Alliance Yards, nor that the required activities at GCRR's Guernsey yard would need to be done sequentially."[95] It is clear that the OTRR does not have to mimic BNSF's operations at its Alliance Yard as BNSF proposes.

(b) Interchange Times

In Opening and Supplemental Opening, Otter Tail allowed 15 minutes for interchange between the OTRR and its connecting carriers, based on the experience of its operating witness, Mr. McDonald, while with the C&NW. While Mr. McDonald was Vice President of Operations at C&NW, it interchanged trains under its run-through agreement with UP at Fremont, NE in less than 15 minutes on an on-going basis. C&NW also interchanged trains moving under a run-through agreement with Conrail in Chicago in less than 15 minutes on an on-going basis. In part, the whole purpose of run-through agreements is to expedite the interchange process by avoiding the time consuming task of changing locomotives.

In contrast, BNSF erroneously assumes, that one hour is required for interchange between the SARR and another carrier. Using one hour for interchange does not comport with the reality of

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94 See BNSF Reply at III.C-28 to III.C-29.
95 See TMPA at 76.

interchange operations where run-through agreements exist, and to use one hour for this operation would deny the OTRR the efficiencies that actually are achieved in the industry.

(c) Time to Attach and Remove Helpers

In its Opening Narrative, Otter Tail included 15 minutes to connect helpers at the mines north of Campbell and 15 minutes to remove helper units at M.P. 8.2 (near Donkey Creek). BNSF has accepted Otter Tail's 15 minutes to add and remove helpers, and, therefore, Otter Tail's Rebuttal Narrative continues to include 15 minutes to add or remove helper units.[96]

iii. Maintenance of Way Windows

One of BNSF's principal criticisms of Otter Tail's string diagram model and operating plan is that no specific allowance has been made for maintenance crews to access the track for regular inspections and for unexpected repairs or "shutdowns" that may result from random failures.[97] BNSF identifies three types of maintenance activities that require "extended periods of track time: (1) programmed replacement by seasonal work gangs, i.e., rail, tie, surfacing, planned contract work, and the like, (2) regular inspections and planned repairs, and (3) maintenance work required to address unplanned events like repair of broken rail."[98] BNSF proceeds to admit that programmed maintenance can be planned in a way to avoid interference with peak traffic periods and that regular inspections and planned "day-to-day maintenance can also be worked around peak traffic periods."[99] Thus, maintenance of way windows for categories (1) and (2) above will not interfere with regular train operations when appropriately planned. However, BNSF claims that the third maintenance

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96 See BNSF Reply electronic files "fargo-snowden FINAL.TRAIN" and "Orin Final.TRAIN."
97 See BNSF Reply at III.C-50.
98 Id. at III.C-51.
99 Id. at III.C-51.

category (unexpected repairs) cannot be avoided regardless of the train activity. BNSF's analysis is in fact flawed and overstates the actual time required for maintenance windows. A critique of the BNSF's analysis is presented below.

BNSF reviewed its own 2002 Random Failure Reports for the Glendive to Fargo and the Gillette to Converse line segments for the 10 day period BNSF erroneously claims is the OTRR's peak operating period. The BNSF stated that it identified those failures "that would either cause a complete stoppage, or a slowdown, of traffic," while all other failures were "eliminated."[100] In the BNSF's study, the BNSF indicated it experienced failures on the Glendive-Fargo line segment, and on the Gillette to Converse line segment. Because the OTRR will not carry near as much traffic that currently moves over the BNSF-UP Joint Line between Gillette and Converse, BNSF adjusted the number of alleged failures by a tonnage ratio to develop the estimated number of alleged failures on the lighter density OTRR.[101] This reduction dropped the number of alleged random failures during the study period. BNSF applied these alleged random failures to its flawed Snowden to Fargo and Gillette to Converse RTC simulations.

BNSF's workpapers summarize each alleged random failure on the Glendive to Fargo and Gillette to Converse line segments.[102] These summaries are far from clear that the time associated with each "occurrence" resulted in delays to the trains moving over that segment. In actuality, only occurrences in the BNSF study were described as definitive "valid stops." Although BNSF provided little detail in the description of the events, Otter Tail concedes that a "broken rail" would most likely result in a train delay, but most signal events such as "bulb replacements" or

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100 See BNSF Reply at III.C-53.
101 See BNSF Reply electronic workpaper "Orin Random Failures.xls."
102 See BNSF Reply electronic workpaper "Orin Random Failures.xls" and "Glen-Fargo Random Failure.xls."

"cause of signal problem not found" will not unduly delay a train, or severely restrict train movements. Furthermore, in its flawed RTC simulations, BNSF restricted train speeds during times of signal outages, the most common occurrences of BNSF's alleged random failures, to a maximum of 10 mph.[103] BNSF's actual timetables and system special instructions do not list such a low speed limit for what essentially becomes non-signaled territories, but rather state that the maximum speed in these locations in 49 mph.[104] This dramatic and uncalled-for decline in operating speeds significantly overstates the impact of the alleged random failures.

Non-scheduled disruptions, by their very nature, cannot be identified and BNSF provided no evidence that these events would actually occur. Moreover, the so-called random failures BNSF included in its flawed simulations are inconsistent with and of greater length than the real world random failures BNSF attempted to emulate. For example, in attempting to copy a

Instead of attempting to impute artificial random failures as BNSF has attempted to do, Otter Tail has accounted for the potential events on the OTRR through its proper design and construction of the railroad structure and its operating plan, which is more than adequate to address unexpected occurrences. As Otter Tail explained in its Opening Narrative at III-C-19, its experts developed the OTRR's capacity utilizing an 18-hour average operating day, thus allowing for variations from

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103 See BNSF Reply electronic workpaper "Orin Final.FORM_B" and "fargo-snowden FINAL.FORM_B."
104 See BNSF Reply electronic workpaper "BNSF System Special Instructions.pdf."

expected normal operations. Moreover, by utilizing actual mine dispatch and interchange arrival times in its string diagram model, Otter Tail has already included the impact of any unforeseen occurrences that impact the timing of train operations over the OTRR system, and reflected these occurrences in its operating statistics and operating costs. Finally, the OTRR is a state of the art railroad. Unlike the BNSF's rail lines, which have been in place for many years, the OTRR is constructed with new equipment and materials and should not face the number of unplanned outages that BNSF currently faces. Comparing BNSF's corrected maintenance failure analysis to the train activity produced by the string diagram model shows that OTRR has sufficient windows where no traffic moves over a line segment to perform any required maintenance. Otter Tail's analysis is extremely conservative because it does not consider where sidings or double track exist. In other words, Otter Tail's analysis assumes that all tracks over the segment would experience a shut down.

e. **Determination of Number of Locomotives**

The operation of the locomotives is discussed under section III-C-1. b. iii above. As stated previously, BNSF has criticized Otter Tail's determination of the number of locomotive units required based on three issues. First, BNSF states that Otter Tail's string program is flawed and unreliable for use in determining operating statistics. This issue has been fully addressed in both Section III-B-4 and III-C-2 and is not discussed again in this section. Second, BNSF claims that Otter Tail's use of a spare margin is inaccurate and based on a locomotive maintenance agreement term that has been abandoned. Third, BNSF claims Otter Tail's method fails to account for the volume of traffic moving over the OTRR during peak periods.

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i. Spare Margin

BNSF is critical of Otter Tail's use of a five percent spare margin to calculate the total number of road locomotives for the OTRR.[105] Otter Tail included a five percent spare margin based on the terms of a locomotive maintenance agreement between BNSF and General Motors Electromotive Division ("EMD"), which provides for EMD

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The BNSF's calculation of the spare margin is another attempt by the BNSF to impute the actual experience of its railroad on the OTRR. The spare margin for SD70 locomotives reflects BNSF's actual experience with the Alliance pool based on the average age and BNSF's average utilization of these locomotives. Similarly, space margin for C44-9 locomotives reflects BNSF's Havre, Montana pool, and is based on the average age of the BNSF's locomotives and the average utilization of those locomotives.

BNSF's hypothesized spare margin for Dash 9's is higher then for SD70MAC's because BNSF has included time for sanding, fueling and servicing ("SFS") as part of its spare margin. BNSF contends that Otter Tail has not included time in its cycle times for this activity. This is incorrect.

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105 See BNSF Reply at III.C-6.
106 See Otter Tail Opening at III-C-12.
107 See BNSF Reply at III.C-64 and BNSF's electronic workpapers, "Spare Margin (SD70MAC).xls," "Spare Margin (C44-9).xls."

Sanding, fueling, and servicing for general freight traffic was included in Otter Tail's cycle times, as the OTRR's locomotives are serviced at Glendive or Donkey Creek.

BNSF argues that the spare margin should not be used by Otter Tail because the EMD contract that Otter Tail based its spare margin on was amended by BNSF and is therefore no longer applicable. What BNSF fails to understand (or chooses to ignore) is that it doesn't matter whether a BNSF contract still includes the terms and conditions which lead to the margin. The relevant issue in this proceeding is that it is *possible* for the OTRR to enter into a similar type of contract with EMD and that the contract between OTRR and EMD would provide for a margin. Despite BNSF's decision (however inefficient) to give up its contractual rights which provide for a margin, OTRR would still have the option to enter into a contract with such a provision. Moreover, the supposed "termination" of the availability guarantee is actually just a temporary suspension of guarantee penalty payments until a new Consolidated Agreement is reached.[108]

BNSF's second argument fails to pass even the lightest scrutiny. BNSF argues that a guarantee by EMD to make locomotives available of the time is not an adequate basis to utilize a spare margin. BNSF is arguing that 100 percent minus is not . As support for its contention, BNSF cites a number of scenarios during which BNSF believes that

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108 See BNSF Reply workpaper III-C-00112 to 0115.
109 See Otter Tail Rebuttal workpaper Vol. III, pp. 5750 to 5756.

a locomotive could be considered available under the EMD agreement but not available for service. These include time during which locomotives are deadheading as excess power on trains, being serviced, awaiting placement onto trains, or unavailable due to an accident, or undergoing quarterly, semi annual, or annual maintenance. A number of these components are already factored into the OTRR scheduling. Time spent on sanding, fueling and servicing is already embedded in Otter Tail's cycle time, as is time spent awaiting placement onto trains. Accidents are sufficiently rare that they should not have a material impact on spare margins. According to the FRA, railroads nationwide averaged 3.71 train accidents per million train miles in 2002. BNSF did better with train accidents per million train miles.[110] As for the time spent on quarterly, etc. maintenance, the contract clearly states that scheduled maintenance is part of the availability guarantee.

On Rebuttal, Otter Tail continues to utilize a spare margin for road locomotives as it represents the best evidence on the record concerning the most efficient operation of the OTRR.

ii. Peaking Factor Adjustment

BNSF claims Otter Tail's method fails to account for the volume of traffic moving over the OTRR during peak periods and therefore has increased the number of locomotives it proposes for the OTRR through use of a "peaking factor" which it claims was accepted by the Board in *TMPA*.[111] BNSF calculates the peaking factor by dividing the number of trains on the OTRR system on the peak day by the average number of trains per day moving on the OTRR in the peak year. This procedure produces a 35 percent peaking factor, which BNSF uses to increase the number of locomotives required by the OTRR.

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110 See Otter Tail Rebuttal workpaper Vol. III, pp. 5756 to 5757.
111 See BNSF Reply at III.C-65.

In doing so it increases its calculated locomotive requirement by an astounding

Basing the number of locomotives required on the peak day requirements in the peak year is an unreasonable constraint on the least cost, most efficient OTRR.[113] No efficient company, and even few inefficient companies, would ever acquire a fleet of equipment to meet the single peak day needs only to have that equipment sit idle for most of the year waiting for that peak day to occur. Based on the experience of Otter Tail witnesses McDonald and Conser, it is common practice in the industry for railroads to acquire enough equipment to meet their average or normal needs and then acquire additional equipment on a short-term basis to meet their peak period needs. The equipment is leased on a short term basis from other carriers, equipment manufacturers or leasing companies.[114] In fact, review of the car and locomotive leases BNSF provided in discovery in this proceeding reveals that many of the leases have contract terms that allow the lessee to sub-lease the equipment on a short term basis to another party.[115]

In addition, carriers that participate in run-through agreements frequently hold on to another carrier's locomotives that are on its system to meet its peak period needs. In Mr. McDonald's experience as Vice President of Operations and as Vice President of Transportation at C&NW, horsepower hours between carriers with run-through agreements are frequently substantially out of

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113 Otter Tail utilizes operating statistics developed from peak day operations to develop locomotive and railcar requirements, but adjusts the peak day statistics to an annual average.

114 For example, beginning in 1987 General Motor's Electromotive Division leased locomotives to U.S. Railroads on a short term basis to meet peak demand. See Otter Tail's Rebuttal workpapers Vol. III, pp. 5769 to 5770. Locomotive Leasing Partners leases locomotives for short term leases of a few months and Montana Rail Link also provided short term leases to other carriers.

115 See Otter Tail's Rebuttal workpaper Vol. III, pp. 5614 to 5623. See also BNSF's recent leasing of additional cars and locomotives to handle the bumper North Dakota wheat harvest. Forbes article (November 5, 2003). Otter Tail Rebuttal Workpaper Vol. 1. III, pp. 5866 to 5867.

balance because one carrier has had an increase in demand for power. When this occurs, the balance is restored either by loaning power back to the other carrier or by making a cash settlement for use of the other carrier's equipment.

BNSF's procedure of requiring the OTRR to have on hand all equipment necessary to meet the single "peak" day requirements throughout the year is totally unrealistic and a waste of resources when equipment is available on a short-term basis to meet peak traffic requirements. BNSF's procedure requires OTRR to have equipment on hand to meet peak day demands even when less than the average trains per day are moving on the OTRR system. This makes no rational economic sense when the OTRR can meet its peak requirements through the various methods discussed above.

In Rebuttal, Otter Tail has modified BNSF's peaking factor procedure in order to determine the amount of locomotives the OTRR would have to lease on a short-term basis to meet its peak demand. As stated previously, BNSF determined its peaking factor by dividing the trains moving on the peak day by the trains moving on the average day. In rebuttal, Otter Tail has determined the aggregate number of trains that exceed the average trains per day on any given day. Stated differently, Otter Tail accumulated the number of trains greater than the average number of trains on each day throughout the peak year. For its base case, this equals a total of 1,568 trains or 6.7 percent of the aggregate of the trains moving on days when the average or less than average number of trains are moving. In its alternative case, this equals1,625 trains or 6.3 percent.

Other evidence that BNSF's 35 percent peaking factor is unrealistic is BNSF's own practice. Examination of BNSF's electronic spreadsheet "Spare Margin (SD70 MAC).xls" filed with its Reply evidence shows the number of SD70 locomotive hours that are available but not utilized in 2002. These locomotive hours which equal of utilized hours in 2002, represent the fleet that

BNSF retains to meet greater than normal traffic demand. BNSF locomotives are available but idle percent of the time, contrasted to the 35 percent of the time BNSF proposes for the OTRR.

BNSF's practice is further evidenced in the book titled *Burlington Northern & Santa Fe Railway 2000-2001 Locomotive and Business Car Review*, published by Great Northern Pacific Publications. This book describes BNSF's "Surge Fleet" of locomotives which is comprised of 527 locomotives or 9.7 percent of BNSF's total fleet. The 9.7 percent Surge Fleet, which BNSF maintains in order to meet peak traffic demands throughout the system, is far less than what it proposes for the OTRR.

Otter Tail's Rebuttal follows the same procedures to calculate the required number of locomotives as its Opening, with the addition of the peaking factor discussed above. Otter Tail calculates that 120 SD70 road locomotives and 47 C44-9 road locomotives are required in the base case for the OTRR. In the alternate case, 131 SD70 locomotives are required and 47 C44-9 locomotives are required. In both the base case and alternate case, 21 SD70 locomotives are required for helper service and 6 switch locomotives are required on the base case. The restated number of locomotives is shown in Rebuttal Exhibit III-C-3.

f. Determination of Number of Railcars

As stated previously, BNSF has criticized Otter Tail's determination of the number of railcars that are required for moving coal based on four issues. First, BNSF states that Otter Tail's string program is flawed and unreliable for use in determining operating statistics. This issue has been fully addressed in both Section III-B-4 and III-C-2 and is not discussed again here. Second, BNSF claims that Otter Tail erred in its identification of those shipments where BNSF supplies the cars for coal shipments. Third, BNSF claims that Otter Tail's use of a five percent spare margin is not

supported. Finally, BNSF claims Otter Tail's method fails to account for the volume of traffic moving over the OTRR during peak periods. The correct determination of the car requirements are discussed for coal and non-coal shipments separately.

i. Coal Car Requirements

(a) Identification of Carrier Supplied Cars

BNSF makes an unsupported claim that Otter Tail misidentified the coal shipments where BNSF actually supplies rail cars, and therefore the coal shipments for which the OTRR must supply railcars. BNSF alleges that Otter Tail's method for identifying BNSF supplied cars was to refer to the car initials and assume that the railroad would be responsible for providing only those cars with railroad markings, i.e., car initials that do not end in "X."[116] BNSF indicates that it actually leases many cars from private-car owners to serve its coal customers and some of these cars have car initials that end in an "X" even though BNSF incurs the cost of leasing these cars.[117] BNSF further claims that Otter Tail, through its faulty identification method, determines that the OTRR would provide only 15 percent of the coal cars required to handle the OTRR coal traffic, whereas BNSF actually provides cars for the traffic moving on the OTRR.

BNSF is incorrect. Otter Tail did not identify the railroad provided coal cars using the car initial as an indicator. Instead Otter Tail identified the railroad provided coal cars from the car ownership field on BNSF's traffic tapes, which contains one of the following entries: 1) S for system cars; 2) F for foreign cars; 3) P for private cars; and 4) T for TTX cars. Otter Tail identified all those shipments that BNSF reported as system provided cars from the OTRR traffic and determined that the OTRR must lease sufficient cars to move that traffic. As shown in Otter Tail's opening

116 See BNSF Reply at III.C-71.
117 Id.

electronic workpapers, the OTRR leases 21 percent of the coal cars required by the system, not the 15 percent claimed by BNSF.[118]

(b) Spare Margin

BNSF rejects Otter Tail's use of a five percent spare margin for railcars and instead uses a 10 percent spare margin, claiming that Otter Tail failed to support its use of the five percent factor. BNSF does not provide any evidence that a 10 percent spare margin is appropriate

(c) Peaking Factor

BNSF makes the same claim regarding Otter Tail's failure to provide sufficient railcars to meet peak demand and as a result applies its peaking factor based on the number of trains moving on the peak day compared to the number of trains on the average day of 35 percent. As discussed in the section regarding locomotive requirements, BNSF's proposal that the OTRR have on hand (during the entire year) sufficient equipment to handle a peak day's volume is incorrect.

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118 See Otter Tail Opening electronic workpaper "OTRR Car Costs.123."

119 For the convenience of the Board, Otter Tail resubmits pertinent transportation contracts previously provided in Opening Evidence. See Otter Tail Opening Workpapers Vol. III, and Otter Tail's Rebuttal workpaper Vol. III, pp. 5781 to 5865.

Based on the experience of Messers. McDonald and Conser, the OTRR would acquire equipment to meet its above average volumes though the use of short-term leases.[120] To reflect this demand, Otter Tail applies in its base case the 6.7 percent peak factor developed based on the number of above average trains moving on the OTRR on any given day throughout the peak year. In its alternative case, Otter Tail applies its 6.3 percent peak factor.

On Rebuttal, Otter Tail provides for 643 railcars in the base case, and 644 railcars in the alternative to serve OTRR coal customers.

(ii) Non-Coal Cars

The OTRR handles four different categories of non-coal cars: 1) system cars; 2) foreign cars; 3) private cars; and 4) TTX cars. In Opening, Otter Tail determined the non-coal car miles using its string model and then determined the number of loaded miles by car ownership category and AAR car type from BNSF's traffic files. Otter Tail then calculated each car type's mileage as a percent of the total non-coal car miles traveled and applied the percentages to the non-coal car miles produced by the String model.

BNSF adopts Otter Tail's approach for determining non-coal car requirements but does so after the elimination of the Z train traffic moving between Fargo and Snowden in its Reply evidence and after the elimination of all Fargo-Snowden traffic in its Supplemental Reply. In addition, BNSF claims that Otter Tail overstated the car miles associated with intermodal traffic for two reasons. First, BNSF erroneously assumes that Otter Tail counted container miles and trailer miles as car mile in its calculations.[121] Otter Tail did not make this error. Instead Otter Tail first identified the containers and trailers shown in the BNSF traffic file moving between the same origin and

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120 See Forbes article (November 5, 2003). Otter Tail Rebuttal workpaper Vol. III, p. 5867.
121 See BNSF Reply at III.C-74.

destination on the same day. Otter Tail then used the car initial and number shown on the traffic file to determine the specific railcars that were used to move these containers and trailers. The miles were then accumulated for these cars, not for the containers and trailers as alleged by BNSF.

Second, BNSF claims that Otter Tail overstated the car miles associated with some intermodal traffic because it failed to recognize that BNSF's car reporting system reports containers moving on articulated equipment as individual cars. BNSF adjusts the total car miles to reflect this overstatement. In Rebuttal, Otter Tail accepts BNSF's adjustment to reflect this overstatement in car miles and applies the adjustment to its calculation of car miles in both its base case and alternative cases. As Otter tail accepts BNSF's elimination of the Z train traffic in Rebuttal, it also accepts BNSF's method of determining the distribution of general freight car miles and car hours by car type and ownership type.

The remaining difference between Otter Tail's calculation and BNSF's calculation of car miles for non-coal system cars is BNSF's application of its 10 percent spare margin and the 35 percent peaking factor. As discussed above with regard to locomotives and coal railcars, the 10 percent spare margin and 35 percent peaking factor significantly overstate the equipment requirements. In rebuttal, Otter Tail applies its five percent spare margin for non-coal system railcars,

and the 6.7 percent peaking factor.

3. OTHER

a. 1,000-Mile Inspections

On Opening, Otter Tail stated that OTRR will perform all FRA-required mile inspections on empty coal trains at Donkey Creek and Glendive. In addition, loaded coal trains moving to interchange at Benson, and loaded coal trains that originate south of Donkey Creek that are

interchanged to BNSF at Fargo, receive an FRA inspection at Glendive. Westbound non-coal trains receive FRA inspections at Donkey Creek and Glendive.[122]

On Reply, BNSF agrees with Otter Tail's approach to FRA inspections for the OTRR with two exceptions. First, BNSF states that, except for the trains receiving I&I switching, no non-coal trains need to be inspected because they will reach another inspection point on the BNSF within 1000 miles of their previous inspection.[123] OTRR concurs with BNSF that non-coal trains need not receive FRA inspection at Donkey Creek or Glendive.

Second, BNSF claims that the coal trains that receive a reduced inspection at Converse must receive a full inspection even though they have been inspected by BNSF at Guernsey, only 100 miles from Converse. BNSF states that the OTRR as the originating carrier must take responsibility for performing a "Class I terminal inspection" and air brake test on all trains it originates, including those that have been inspected only 100 miles earlier.

BNSF's statement is not supported by any regulation, nor by common practice in the industry. Class 1 terminal inspections are performed at locations convenient to the carriers involved, and has nothing to do with which carrier originates or terminates the traffic. As an example, according to Mr. McDonald, when WRPI/CNW was operating as a separate entity, Union Pacific performed all Class 1 terminal inspections at its North Platte, NE yard. WRPI/CNW, who originated all PRB coal trains that were interchanged to Union Pacific at South Morrill, NE, performed no inspections anywhere on its rail lines. OTRR is performing FRA certified inspections where it is convenient and benefits movements to BNSF, conversely BNSF's inspection at Guernsey benefits movements to

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122 See Otter Tail Opening at III-C-25 to 26.
123 See BNSF Reply at III.C-79.

OTRR. OTRR takes the position that additional inspections at Converse are redundant and unnecessary.

b. Train Control and Communication

Otter Tail's Rebuttal proposals for train control and communications are discussed in Section III-F-6.

c. Miscellaneous

Otter Tail's Rebuttal on other aspects of the OTRR's operating plan involving locomotive maintenance and fueling, equipment maintenance, and personnel are discussed in Section III-D.

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BEFORE THE
SURFACE TRANSPORTATION BOARD

OTTER TAIL POWER COMPANY **Complainant,** **v.** **THE BURLINGTON NORTHERN AND SANTA FE RAILWAY COMPANY,** **Defendant.**	**Docket No. 42071**

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COMPLAINANT'S REBUTTAL EVIDENCE

VOLUME I - NARRATIVE DISCUSSION
2 of 2

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April 29, 2004

III-D
OPERATING EXPENSES

III.D. OPERATING EXPENSES

The annual operating and maintenance expenses for the OTRR were developed in the following manner. First, Otter Tail developed an operating plan that identifies train configuration and frequencies, crew districts, dwell times, and other operating parameters. Otter Tail then identified the traffic moving on the peak day and prepared a string diagram to test the operational feasibility of the operating plan/engineering design. The string diagram also identified the operating statistics that are generated by handling the traffic levels based on the peak traffic day. General and administrative requirements and costs were developed based on the operating plan. In addition, Otter Tail determined the information technology system requirements necessary to handle the stand-alone traffic levels; and finally Otter Tail applied operating unit costs to the identified OTRR workload to develop annual operating expenses.[1] Annual roadway maintenance expenses and joint facility expenses for the OTRR were also developed.

In both its Reply and its Supplemental Reply, BNSF accepts many of Otter Tail's unit costs for operating expense; however, it disagrees with the operating statistics and staffing of the OTRR to which the unit costs apply. As fully discussed in Section III-A, supra, both Otter Tail and BNSF have presented two stand-alone cost scenarios. Otter Tail's Base Case represents the stand-alone system presented on Opening and modified slightly on Rebuttal. The Base Case reflects revenue divisions based on market division information provided by BNSF in discovery in this proceeding and the traffic base selected using the market division revenue criteria. Otter Tail's Alternative Case reflects the stand-alone system presented on Supplemental Opening with revenue divisions

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[1] See Opening Errata Exhibit III-H-1, Table K.

based on the STB's Modified Straight Mileage Prorate ("MSP") methodology and a traffic base selected using the MSP revenue division criteria.

BNSF has also presented two stand-alone cost scenarios in this proceeding. BNSF's Reply Case (as modified by BNSF's March 22, 2004 Errata) responded to Otter Tail's Base Case. It is BNSF's Reply Case that Otter Tail critiques in detail in this Rebuttal. In Supplemental Reply, BNSF submitted a new stand-alone system that excluded a significant amount of non-coal overhead traffic from the OTRR traffic group, (hereinafter referred to as BNSF's "Supplemental Reply Case"). As a result of the elimination of this traffic, BNSF also eliminated the line from Glendive to Snowden, Montana, reduced the size of the Glendive Yard and reduced many of the operating statistics that are included in its Reply Case. In developing the operating costs in its Supplemental Reply Case, BNSF used the same operating unit costs and procedures that it relied on in its Reply Case. Because BNSF used the same operating unit costs and procedures for determining operating costs as used in its Base Case, the arguments presented in this Rebuttal apply equally to both BNSF's Reply and Supplemental Reply Cases. Table III-D-10,[2] below summarizes the differences between the OTRR's operating expenses in Otter Tail's Opening Errata, BNSF's Reply and Otter Tail's Rebuttal. A summary of the operating statistics and operating costs based on Otter Tail's Alternative Case are presented in Section III-D-9, infra.

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[2] Tables III-D-1 through III-D-9 appear in Otter Tail's Opening Narrative.

Table III-D-10
Comparison of Otter Tail and BNSF
Annual Operating Expenses For The OTRR — 2002
($ In Million)

	Item	Otter Tail Opening	BNSF Reply	Otter Tail Rebuttal	Difference
	(1)	(2)	(3)	(4)	(5)
1.	Train and Engine Personnel	$43.08	$67.18	$46.39	$20.80
2.	Trackage Rights	$0.03	$0.08	$0.04	$0.05
3.	Maintenance of Way (spot)	$18.74	$71.67	$18.21	$53.45
4.	Locomotive Fuel and Servicing	$70.23	$75.59	$78.25	$(2.66)
5.	Locomotive Lease	$13.61	$31.11	$16.97	$14.14
6.	Locomotive Maintenance	$19.48	$26.04	$19.87	$6.17
7.	Operating Personnel Incl. Materials and Supplies	$10.89	$17.88	$10.91	$6.96
8.	Freight Car Expenses	$32.68	$36.96	$24.62	$12.34
9.	Ad Valorem Taxes	$5.12	$6.24	$5.12	$1.11
10.	Loss and Damage	$1.12	$0.76	$1.06	$(0.03)
11.	General and Administrative	$11.26	$22.26	$11.65	$10.62
12.	Insurance	$8.50	$21.67	$8.76	$12.91
13.	Training and Start-up [1/]	-	$34.63	-	$34.63
14.	Total	$234.76	$412.07	$241.85	$170.22

1 Otter Tail Training and Start-up costs are included in the DCF model rather than being treated as operating expenses.

Source: Column 2: Otter Tail Opening Errata Exhibit III-H-1, p. 23.
Column 3: BNSF Exhibit III-H-1, p. 23.
Column 4: Exhibit III-H-3, p. 23.
Column 5: Column 3 - Column 4.

The differences in Otter Tail's Opening, BNSF's Reply and Otter Tail's Rebuttal are described below under the following topical headings.[3]

3 The development of all of the operating costs of the OTRR is contained in the computer file "Otter Tail_Opr_Exp_Reb.123" included in Otter Tail's electronic workpapers.

1. Locomotives
2. Freight Car Expense
3. Personnel
4. Maintenance of Way
5. Leased Facilities
6. Loss and Damage
7. Insurance
8. Ad Valorem Taxes
9. Summary of Total Operating Expenses

1. Locomotives

Otter Tail's Opening Errata determined that the OTRR would require 108 SD70MAC locomotives for unit coal train service and helper service, 45 C44-9 locomotives for general freight service, and 4 SD40-2 locomotives for switch service at Donkey Creek and Glendive. In Reply, BNSF contends that operation of the OTRR would necessitate 172 SD70MAC locomotives for coal unit train and helper service, 70 C44-9 locomotives for general freight, and 8 SD40-2 locomotives for switch and work train service.[4] This is despite BNSF's assumption of 38 percent less coal traffic and 16 percent less general freight traffic, as well as 12 percent fewer coal locomotive unit miles and 1 percent fewer general freight locomotive unit miles than put forth by Otter Tail in its Opening Evidence. As shown in the previous section, part of the difference in locomotive requirements lies

[4] In Supplemental Reply, BNSF contends that the OTRR would require SD70 MAC locomotives, 27 C44-9 locomotives and 8 SD40-2 locomotives.

in each party's calculation of cycle times and other operating assumptions, but much of the difference has to do with differences in the parties' spare margin and peaking factor. As discussed in Section III-C, Otter Tail uses a 5 percent locomotive spare margin, compared with BNSF's percent, and 10.3 percent spare margin for SD70 and C44-9 locomotives, respectively. Further, Otter Tail uses a 6.7 percent peaking factor to account for the additional locomotives required to handle traffic incremental to the average level of traffic on any given day. BNSF however, proposes that the OTRR increase the number of locomotives in its fleet by 35 percent in order to have the ability to handle traffic moving on the peak day.

Had BNSF used the same spare margin as Otter Tail, without its excessive peaking factor, but retained all of its other operating assumptions, BNSF would have included only 129 SD70MACs and 50 C44-9 locomotives in its Reply evidence. Put another way, BNSF's premise that more than one third of OTRR's locomotive fleet would be unused or unavailable at any given time accounts for 80 percent of the difference between the parties regarding the number of C44-9 locomotives and 67 percent of the difference in the SD70MAC count. As discussed in Section III-C, BNSF's appallingly low asset utilization is inconsistent with a least cost most efficient carrier and is far worse than what BNSF itself achieves in the real world. In fact, BNSF's own evidence shows that it requires only percent spare margin for SD70 locomotives and has a surge fleet of only percent of its total fleet to handle its peak demand periods.[5]

a. Locomotive Leases

The parties agree that the OTRR should lease all of its locomotives. In Opening Evidence, Otter Tail assumed an annual lease cost of $ for each SD70MAC locomotive and a lease cost of

[5] See Section III-C-1, supra.

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for C44-9's based upon a lease provided by BNSF in discovery. BNSF agrees with the use of this lease as the basis for locomotive lease rates but disagrees with the application of the lease payments. BNSF contends that Otter Tail should not have based its lease rates on actual BNSF 2002 lease payments but rather should have "normalized" the lease payments over the entire period of the lease. In other words, Otter Tail should have used a simple average of the lease payments.

BNSF's approach suffers from several immediate flaws. First, its resulting lease payments are not based upon compensation that any party actually paid for locomotives, i.e., BNSF never paid a "normalized" lease rate. The lease that BNSF provided in discovery reflects actual scheduled payments over . However, BNSF takes the average of these payments and then escalates it using the forecasted RCAF-U in BNSF's DCF model. The procedure overstates lease costs by 30 percent for both SD70MAC's and C44-9's.[6] By contrast, Otter Tail's method of calculating locomotive lease costs was accepted by the Board in TMPA. In TMPA, the complainant based SD70MAC lease rates on the same method that Otter Tail has used in the current case, while BNSF used a simple average annual cost. The Board accepted TMPA's method and rejected BNSF's method stating that, "We agree that basing lease costs on the actual payment schedules in the lease agreements is most appropriate. Neither party has justified a departure from this obvious measure."[7] Otter Tail's approach is also consistent with how the parties calculate locomotive equipment costs in variable cost evidence.

In opening Otter Tail used annual lease rate for SD40-2 locomotives. This is based upon the daily lease rate of $ BNSF locomotives as provided by BNSF in discovery.

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6 See Otter Tail Rebuttal electronic Workpaper "Analysis of BNSF Loco Lease Calcs.xls."
7 *TMPA* at p. 79.

In its Reply Evidence, BNSF rejects this lease rate, contending that Otter Tail should have used a weighted average of 20 daily lease rates of $ instead. Otter Tail's lease rate is reasonable. The fact that Otter Tail's $ daily lease rate is below BNSF's average does not make Otter Tail's calculation unreliable. Furthermore, the $ lease rate does not simply represent the minimum lease rate, it represents the mode. Of the 31 SD40-2 daily lease rates that BNSF provided in discovery, was by far the most common daily rate, applying to 17 out of the 31 units.[8]

In Rebuttal, Otter Tail continues to rely on the same locomotive lease rates it used in its Opening Evidence.

Table III-D-11 compares the parties' respective 2002 locomotive lease costs.

Table III-D-11
Locomotive Lease Expenses

	Item	Otter Tail Opening	BNSF Reply	Otter Tail Rebuttal	Difference BNSF Reply Otter Tail Rebuttal
	(1)	(2)	(3)	(4)	(5)
1.	Number of SD70MAC Locomotives	108	172	141	31
2.	Annual SD70MAC Unit Lease Cost				
3.	Total SD70MAC Lease Cost				$
4.	Number of C44-9 Locomotives	45	70	47	23
5.	Annual Dash 9 Unit Lease Cost				
6.	Total Dash 9 Lease Cost				
7.	Number of SD40-2 Locomotives	4	8	6	2
8.	Annual SD40-2 Unit Lease Cost				
9.	Total SD40-2 Lease Cost	$			
10.	Total Locomotive Lease Cost	$13,608,914	$31,110,340	$16,971,619	$14,138,721

[8] See Otter Rebuttal electronic workpaper "Alliance (Otter Tail) 12-31-02_SD40Count.xls."

b. Locomotive Maintenance

Both parties assume that locomotive maintenance would be performed by outside contractors. In its Opening Narrative, Otter Tail based its SD70MAC locomotive maintenance cost upon a maintenance agreement between BNSF and General Motors Electro- Motive Division (EMD) that BNSF provided in discovery. The C44-9 maintenance costs are based upon an agreement between BNSF and General Electric (GE), and the SD40-2 maintenance costs are based on an agreement between BNSF and MK Rail also provided by BNSF in discovery.

Each of these maintenance agreements includes two cost components, a cost per locomotive unit mile, and a cost per overhaul. The cost per locomotive unit mile that BNSF is charged typically varies by locomotive usage. The more a locomotive is used in a given month, the lower the maintenance rate per unit mile. Otter Tail has included logic in its spreadsheet that automatically selects the correct cost per unit mile depending upon OTRR's usage.

The one exception is the SD40-2 cost per unit mile, where Otter Tail made the highly conservative assumption that the OTRR would be charged a mileage rate based on each unit traveling a minimum of 10,000 miles per month even though these locomotives travel less than half of that amount. Otter Tail's SD40-2 locomotive unit mile assumptions, in turn, are even more conservative, since they presume that each SD40-2 switch locomotive is in constant use, while in fact the SD40s are assigned to yards and in pairs, with one of each pair being used as a spare locomotive.

The differences between BNSF and Otter Tail maintenance unit costs result from five areas: 1) BNSF assumes a lower locomotive utilization and therefore a higher mileage rate; 2) BNSF claims that Otter Tail misinterpreted the calculation of C44-9 overmile rates; 3) BNSF states that Otter Tail

made several mistakes in indexing maintenance costs for C44-9's and SD40-2's; 4) BNSF contends that Otter Tail mistakenly used SD70MAC overhaul rates for C44-9's and SD40-2's; and 5) BNSF states that Otter Tail neglected to include labor costs in its SD70MAC overhauls. Otter Tail discusses each of these below.

As covered previously, BNSF's excessive locomotive spare margin and peaking factor greatly overstate the number of locomotives required by the OTRR.[9] Having too many locomotives inordinately decreases the utilization rate and in turn requires application of artificially high maintenance costs per unit mile. Otter Tail disagrees with BNSF's spare margin and peaking factor assumptions and its low locomotive utilization rates. In Rebuttal, Otter Tail's maintenance costs continues to reflect the OTRR's lower maintenance mileage rates based on its higher locomotive utilization.

Second, BNSF's contention that Otter Tail misapplied the C44-9 overmile rate is wrong. According to BNSF, the relevant GE contract requires that an amount equal to ıt of the indexed base mileage rate be paid for locomotive unit mileage greater than 10,000 but less than 13,000 miles per month and that an amount equal to of the indexed base mileage rate be paid for unit miles in excess of 13,000 per month. On the contrary, the contract states that the

d .[10] Therefore, Otter Tail continues to use for the C44-9 overmile rates.

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9 See Section III-C-1, supra.
10 See Otter Tail Opening Workpaper Vol. 4, pp. 2370-2731.

Third, BNSF is correct that Otter Tail "over indexed" C44-9 and SD40-2 locomotive unit mile maintenance costs. In Rebuttal, Otter Tail adopts BNSF's indexing methodology for these locomotive unit mile costs.

Fourth, upon reexamination of its Opening Errata electronic spreadsheets, Otter Tail finds that it did mistakenly use an SD70MAC overhaul rate as the basis for C44-9 overhauls and corrects this error in Rebuttal. However, the SD40 overhaul rates used in Otter Tail's Opening Evidence were correct and are also used in Rebuttal.

Finally, although BNSF concedes that Otter Tail's proposed overhaul interval is consistent with its locomotive unit mile assumptions, however, it contends that Otter Tail's cost per overhaul is understated. Specifically, BNSF states that the ›er overhaul for SD70 locomotives includes the cost of materials only, and that Otter Tail neglected to include the cost of labor. In its Reply evidence, BNSF bases the SD70 overhaul cost on an invoice which, according to BNSF, shows an overhaul cost of $ ›r 106 SD70 locomotives. BNSF then implies that this invoice is better evidence than a maintenance contract, stating that, "The actual 2001 overhaul costs are clearly more accurate than simple escalation of aged contracts..."[11]

What BNSF neglects to mention about this invoice is that, directly below the line that reads:

the invoice states "; D

"[12] BNSF has not provided Otter Tail with its Labor Resources Agreement with EMD, but the invoice demonstrates evidence that BNSF provides the labor, but then charges

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11 See BNSF Reply at III.D-6.
12 See BNSF Reply Workpaper BNSF.RP.WP.III.D-0009.

the cost of the labor back to EMD, deducting it from the invoice. The actual cost to BNSF for those particular overhauls was $;t.[13]

BNSF's SD70 overhaul costs are also incorrect because: 1) BNSF misinterprets BNSF/EMD maintenance contracts; 2) BNSF uses an invoice from a relatively old maintenance contract covering aged locomotives; and 3) BNSF's proposed cost defies common sense. In its Opening Evidence, Otter Tail used $) per overhaul from an EMD maintenance contract as the basis for SD70 overhaul costs and then set the interval between overhauls at every ;ars per requirements in the EMD contract. BNSF's overhaul interval is longer at every seven years, reflecting BNSF's assumed lower locomotive utilization.

First, as discussed above, BNSF's SD70 overhaul rate inappropriately includes labor, which BNSF bills back to the contractor. Second, despite BNSF's characterization, the invoice upon which BNSF based its SD70 overhaul cost is far more "aged" than the contract that Otter Tail used as the basis for SD70 overhauls. The 106 locomotives mentioned in the invoice were covered under the 1994 Technical & Maintenance Agreement, signed by EMD and the Burlington Northern Railroad. [Add Cite] These locomotives are relatively old, many having been acquired in 1994 and 1995, and are among the first SD70MACs to be put into service by BNSF. Among them are locomotives that have since been characterized in a contract between BNSF and Alstom Transportation, Inc. as "Bad Actors" because of their considerable maintenance problems.[14] In contrast, the OTRR would have a much newer fleet. Otter Tail maintenance estimates are based upon the far more recent 5th Amendment to the Amended and Restated Maintenance Agreement signed by BNSF and EMD in

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13 See Otter Tail Rebuttal electronic workpaper "Analysis of SD70MAC Invoice.xls."
14 See Otter Tail Rebuttal Workpaper Vol. 2, p. 5880.

October 1999. [Add Cite] This covers more recently placed units, most acquired between 1998 and 1999.

Finally, BNSF's) figure for SD70 overhauls runs contrary to common sense. Under BNSF's analysis, the SD70's are by far the most expensive locomotive to overhaul of the OTRR fleet. C44-9 overhauls would be less costly at ' ' each, and the venerable SD40-2's would cost $ 3 per overhaul. However, SD70MACs are AC-powered units, and AC traction motors have fewer moving parts.[15] Generally, they are less expensive to overhaul. For example, in a recent contract between BNSF and GE that covers C44-9 and AC4400's, the cost per unit to overhaul DC-powered C44-9's was : than the cost of overhauls for the AC-powered AC4400's.[16] Otter Tail therefore retains the same locomotive overhaul cost in its Rebuttal evidence as used in Opening.

Table III-D-12 below compares Otter Tail and BNSF's locomotive maintenance costs.

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15 See Otter Tail Rebuttal workpaper Vol. 2, pp. 5881 to 5886.
16 See Otter Tail Rebuttal workpaper Vol. 2, pp. 5887 to 5889.

REDACTED

Table III-D-12
Locomotive Maintenance Costs

	Item (1)	Otter Tail Opening (2)	BNSF Reply (3)	Otter Tail Rebuttal (4)	Difference BNSF Reply Otter Tail Rebuttal (5)
1.	SD70MAC locomotive unit miles	20,888,221	18,533,818	22,518,857	(3,985,039)
2.	Cost/LUM				
3.	Annual Maintenance SD70MACs				
4.	Annual Overhaul Charge/Unit				
5.	Total SD70MACs	108	172	141	31
6.	Total Overhauls for SD70 MACS	$			
7.	C44-9 locomotive unit miles	11,705,605	11,603,758	$701,059	$2,902,699
8.	Cost/LUM				
9.	Annual Maintenance C44-9				
10.	Annual Overhaul Charge/Unit				
11.	Total C44-9	45	70	47	23
12.	Total Overhauls for C44-9				
13.	SD40-2 locomotive unit miles	210,240	272,880	315,360	42,480
14.	Cost/LUM				
15.	Annual Maintenance SD40-2s				
16.	Annual Overhaul SD40-2s				
17.	Total SD40-2s	4	8	6	(2)
18.	Total Overhauls for SD40-2s				
19.	Total Annual Maintenance	$19,483,866	$26,043,112	$19,873,890	$6,169,222

c. Locomotive Servicing

In its Opening Evidence, Otter Tail calculated locomotive servicing unit costs using data from BNSF's 2002 Annual Report, Form R-1, de-escalated to the first quarter 2002. In Reply, BNSF accepted Otter Tail's calculation of locomotive servicing cost of $0.078 per locomotive unit mile. Consequently, Otter Tail's unit cost is the best evidence of record.

In numerous places in BNSF's Reply narrative, including the section on locomotive servicing, BNSF objects to Otter Tail's method of indexing operating costs. Specifically, BNSF claims that Otter Tail's approach is inconsistent in that Otter Tail uses price indexes that are unadjusted for productivity gains when indexing prices backward, but then uses RCAF-A, which is adjusted for productivity, to index prices going forward. BNSF claims that this indexing method artificially reduces prices because the unadjusted indexes tend to reduce prices when used to bring prices backward, but the RCAF-A then reduces prices when used to bring prices forward. BNSF also argues that Otter Tail should not have used RCAF-A to index prices at all, because it is unrealistic to assume that the OTRR would be able to achieve the magnitude of productivity gains possible for Class I railroads.

Otter Tail disagrees with both aspects of BNSF's argument. First, as discussed in Section III-G infra, it is implausible that the OTRR would not benefit from productivity gains over the twenty years of the DCF model. For example, as pointed out by BNSF in Section III-D-3:

> Otter Tail proposes to utilize standard North American railroad operating methods, with just a few changes at the margins. For example, track construction and maintenance will be done with standard AREMA specification materials and using standard methods used by virtually all railroads. Trains will be manned by industry-standard two person crews. Standard issue locomotives will be employed, exactly the same type of locomotive currently purchased by the incumbent BNSF. Otter Tail proposes to utilize a third party information system for railroad operations already used by hundreds of railroads.[17]

It is clear from BNSF's own statements that the OTRR in many critical respects is very similar to other carriers in the US railroad industry. As such, there is no reasonable basis for the argument that it would not achieve the same productivity gains realized by the rest of the industry over a twenty-year period.

Second, in challenging Otter Tail's use of both indexes that are adjusted and not adjusted for productivity, BNSF has overlooked the nature of productivity gains. These improvements tend to be a long-term phenomenon taking place not within a single year but rather over multiple years. However, in all instances where Otter Tail adjusted wages backward, these adjustments were within a single year, from 2002 to 1Q02. Therefore, it would be inconsistent to have used the RCAF-A or other productivity adjusted factor.

It is most appropriate to use an unadjusted price index for changes of several months because this is too short of a time span for productivity gains to be applicable. Otter Tail used this approach not only to index prices backward from 2002 to 1Q02 but also to bring prices forward from 2001 to

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[17] See BNSF Reply at III-70

1Q02, such as with loss and damage costs. Otter Tail's use of price indices was entirely appropriate, and Otter Tail maintains the same indexing factors in Rebuttal evidence.

d. Locomotive Fuel

In its Opening Evidence, Otter Tail used an average price per gallon for the OTRR of $0.65 based upon BNSF's actual price per gallon for 1Q02 as reported by BNSF in its Investor's Report. BNSF objects to this approach in its Reply evidence, contending that Otter Tail's DCF model causes 2002 fuel costs to be understated compared to what BNSF actually paid. In contrast, BNSF used the average 2002 BNSF cost per gallon de-escalated to 1Q02 using the RCAF-U. Otter Tail adopts the use of BNSF's actual 2002 fuel cost in its Rebuttal evidence. The result is that the OTRR fuel cost per gallon increases to $0.73 gallon in 2002.

This is a highly conservative approach. Despite the impression that BNSF creates in its Reply narrative, $0.65/gallon is not at all an "aberration," and there is no reason to believe that this is not an appropriate basis for what the OTRR would pay during the twenty years of the DCF model. Rather, it is the cost of fuel between 2000 and 2002 that is the aberration. The U.S. Energy Information Administration maintains and records the price of No. 2 diesel fuel to commercial/institutional customers going back to 1994. Diesel fuel prices remained relatively stable, averaging about $0.61/gallon, between 1994 and 1999 but then spiked upward in 2000. The average price of fuel between 2000 and 2002 was 25 percent above the average for the 1994 - 2002 time period with the 2002 price of diesel 13 percent above average.[18] Nevertheless, Otter Tail adopts $0.73/gallon for the OTRR fuel cost.

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[18] See Otter Tail Rebuttal Workpaper Vol. 2, p. 5891.

BNSF also objects to Otter Tail's calculation of fuel consumption rates. In its Opening Evidence, Otter Tail developed fuel consumption rates for road locomotives based upon BNSF fuel costs that URCS allocates to GTM and LUM. The calculation uses BNSF statistics regarding LUMs, GTMs, and gallons consumed. Otter Tail excluded gallons consumed in switching from the 2002 BNSF Train Fuel Gallons, so that the calculation would only capture gallons consumed in road service for these road locomotives. BNSF adds 57,433 gallons that BNSF consumed in switching, claiming that without these gallons, Otter Tail understated BNSF fuel consumption rates. However BNSF's supposed "correction" creates a double count. BNSF first has the OTRR pay for gallons consumed in switching when it calculates SD70 and C44-9 fuel consumption, and then BNSF has the OTRR pay for gallons consumed in switching a second time by adding 885,087 gallons consumed by SD40-2 switch locomotives.

In Rebuttal, Otter Tail maintains the same fuel consumption rates used in its Opening evidence of 3.42 gallons per unit mile for SD70's, 2.74 gallons per unit mile for C44-9's, and 3.08 gallons per unit mile for SD40-2's.

The Table III-D-13 below compares locomotive fuel and servicing costs.

Table III-D-13

Comparison of Locomotive Operating Expenses

	Item (1)	Otter Tail Opening (2)	BNSF Reply (3)	Otter Tail Rebuttal (4)	Difference (5)
1.	Service Cost/Locomotive Unit-Mile	$0.780	$0.780	$0.780	0
2.	Locomotive Unit-Miles	32,804,066	30,410,456	31,535,276	(1,124,820)
3.	Total Locomotive Service Costs	$2,557,221	$2,370,628	2,458,313	(87,685)
4.	Gallons/Locomotive Unit Mile - SD70	3.42	3.60	3.42	.18
5.	Total Gallons	71,347,653	66,672,474	79,917,398	(10,244,924)
6.	Gallons/Locomotive Unit Mile - C44-9	2.74	2.89	2.90	(0.01)
7.	Total Gallons	32,120,086	33,530,929	25,234,986	8,295,933
8.	Gallons/Locomotive Unit Mile - SD40-2	3.08	3.24	3.16	0.08
9.	Total Gallons	647,506	885,087	995,893	(110,806)
10.	Price/Gallon	$0.65	$0.73	$0.73	$0.00
11.	Total Fuel Costs	$67,674,909	$73,221,105	$75,790,690	$(2,569,585)
12.	Total Locomotive Operating Expenses	$70,232,130	$75,591,734	$78,249,004	$(2,657,269)

2. RAILCAR EXPENSE

a. Railroad Provided Cars

In its Reply narrative, BNSF criticizes Otter Tail's calculation of railcar costs for railroad provided cars in the following areas:

- Calculation of OTRR car requirements
- Car lease rates and maintenance costs

i Car Requirements

Car requirement for both coal and general freight are discussed in III-C above.

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ii. Railcar Lease Rates and Maintenance Costs

(a) Rail Car Lease Rates

The parties agree that the OTRR will lease coal cars to be used for coal customers that do not supply their own cars. Additionally, the parties agree that the OTRR will lease cars to be used for the portion of general freight traffic moving over the OTRR that uses system-owned cars. The parties do not agree, however, on how the lease rates should be calculated. Much of the difference has to do with the manner in which BNSF selects the leases it uses and how it applies railcar maintenance costs.

In Opening, Otter Tail assumed that the OTRR would lease all railcars using full service leases. Otter Tail relied on two primary sources for lease rates: full service leases found in *Railway Age* magazine articles, and net leases provided by BNSF in discovery. Of the leases that BNSF supplied in discovery, only one lease, between ' :s and BNSF was a full service lease. Although some of the lease rates specified in the vere lower than those used in Otter Tail Opening evidence, Otter Tail did not use the ase rates because most of the lease riders were of short duration and/or would end soon after the OTRR base period. Therefore, when Otter Tail did use BNSF leases as the basis of OTRR lease costs, Otter Tail was forced to rely on net leases and then estimate the cost of converting these net leases to full service leases. Otter Tail estimated the full service premiums by using the difference between net and full service leases found in the *Railway Age* articles and then adjusting this cost by type of equipment. Otter Tail also used railcar maintenance data found in BNSF's 2002 R-1 Annual Report to adjust estimated maintenance costs

between different types of equipment.[19] These produced very reasonable estimates for converting net leases into full service leases.

In Reply, BNSF's procedure for determining railcar lease/maintenance costs is based on two assumptions, both of which are unsound. First, BNSF assumes that lease rates are more appropriate for the OTRR than industry-wide figures, i.e. the OTRR could not achieve a better lease rate than BNSF. Second, BNSF assumes that full service leases do not capture all railcar maintenance costs. BNSF's application of these two assumptions yields absurd results, and BNSF's calculation of lease costs for certain car types is inconsistent and bizarre.

As is the case in numerous other instances, BNSF argues that its own costs - here, railcar lease costs - are the most appropriate evidence. But BNSF fails to explain why the OTRR, as the least cost, most efficient, carrier should be constrained by BNSF's costs. BNSF's self-reverential approach does not make sense. Often, BNSF provided only a single lease for a car type in discovery. It is absurd to suggest, as BNSF does, that one or a handful of railcar leases are the most accurate picture of the market, if one is trying to capture the entire population or even only BNSF's 36,000 leased cars. Also, BNSF suddenly argues that, for the purpose of railcar leases, the OTRR is akin to a small railroad, rather than a Class I. In fact, the OTRR will originate all of its coal traffic, and with 1,284 route miles, could hardly be called a "short bridge carrier." Therefore, it does not make sense that BNSF's lease rates should be more appropriate than industry averages. Simply put, BNSF has offered no credible reason why the OTRR could not obtain better lease rates than BNSF.

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[19] The details of Otter Tail's railcar maintenance assumptions are included in Otter Tail Rebuttal electronic workpaper, "Railcar maintenance estimates.123."

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(b) Maintenance Costs

BNSF also argues that full service leases do not cover all railcar maintenance costs, i.e. that a full service lease is not really a full service lease. BNSF states: "a full-service lease covers only routine maintenance and would not account for other significant repairs that cars might need."[20] This assertion is flatly contradicted by the one full service lease that BNSF did provide in discovery,

[21] In other words, responsible for *all* maintenance and repair costs, not simply routine maintenance.

Further, BNSF's calculation of OTRR maintenance costs significantly overstates railcar maintenance expense. These costs were developed using the BNSF 2002 R-1 Annual Report and by dividing Net Repair cost from Schedule 415 by the number of cars for each type from Schedule 710. The average age of BNSF's railcar fleet, according to BNSF's 2002 Annual Report, is 16 years. A fleet of railcars that produces a 16 year average age will necessarily include cars that require more repair and maintenance than new cars, such as the OTRR fleet acquired in 2002.

Moreover, the railcar maintenance costs shown in BNSF's annual report are based on the rates agreed to by Class I carrier's under the AAR Interchange Rules. These rates do not reflect the

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20 See BNSF Reply at III.D-23

21 See Otter Tail Rebuttal workpaper, Vol. 2, p. 5895.

amounts a railcar lessor would pay to a private contractor for repair maintenance of its fleet operating under a full service lease agreement.

BNSF's calculation of railcar leases yields absurd results, such that the cost of maintaining railcars in many cases is almost as much as the lease rate itself. For example, BNSF calculates the monthly lease rate for an aluminum gondola would equal ased on a full service lease rate of hat BNSF pay l per month for rail car maintenance. By comparison, Otter Tail pays only per month to lease aluminum gondolas under a full service lease and pays no additional maintenance cost.[22]

BNSF similarly double counted maintenance on Covered Hopper and Equipped Gondola leases, basing the lease on full service leases as quoted by *Railway Age* and then adding $112/month and $198/month, respectively for maintenance costs.[23] Table III-D-14 shows BNSF's monthly lease costs plus monthly maintenance costs by car type compared with Railway Age's reported monthly full service lease costs for the same car types. As shown, BNSF's lease cost plus maintenance costs exceeds the Railway Age full service lease costs by as much as 52 percent.

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22 Otter Tail provided BNSF a copy of its full service railcar lease in discovery. A copy is also included on Otter Tail Rebuttal workpaper Vol. 2, pp. 5990 to 6006.

23 See BNSF Reply electronic workpaper, "Railcar Costs.xls"

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Table III-D-14
Comparison of Railcar Cost per Month
BNSF Reply vs. Railway Age 2001 Guide to Equipment Leasing

	Car Type (1)	BNSF Reply Base Lease (2)	BNSF Reply Maintenance (3)	BNSF Reply Total (4)	Railway Age Full Service (5)	Difference Amount (6)	Difference Percentage (7)
1.	Equipped Box				$475		
2.	Unequipped Box				$475		
3.	Covered Hopper				$311		
4.	Unequipped Open Hopper				$450		
5.	Equipped Hopper				$450		
6.	Gondola				$400		
7.	Equipped Gondola				$485		

[1] Net lease.
[2] Full service lease.

(c) Lease Payments

Otter Tail also disagrees with several other facets of BNSF's railcar lease calculations. Otter Tail based the lease costs of box cars, intermodal cars, refrigerated box cars, and auto racks on the 2002 payments of long term leases. Similar to locomotive lease costs, BNSF believes that Otter Tail should have used the "normalized" lease payments for these equipments types, in essence, the simple average of lease payments over the duration of the lease. As with locomotive leases, this approach inflates the actual cost of the leases because BNSF's DCF model increases these costs by the RCAF-U, while the payments from the lease are actual payments, not subject to inflation adjustments. For

example, BNSF's procedure overstates lease costs in BNSF lease number 1999-C by 20 percent, and overstates lease costs in BNSF lease 2001-D by 30 percent.[24]

BNSF also develops a weighted average of refrigerated box car lease rates depending upon whether the car is mechanical or non-mechanical. Without explanation BNSF gives the more expensive mechanical cars 80 percent of the weighting. Further, BNSF assumes that the low refrigerated car lease rate contained in BNSF lease 2001-D is for non-mechanical cars, but there are no workpapers supporting BNSF's conclusion that this less expensive lease rate covers non-mechanical reefers. BNSF only provided the lease participation agreement, which does not include car numbers or any detailed description of the equipment.

For the reasons listed above, Otter Tail believes that its calculation of railroad owned car costs are more accurate and the best evidence of record.[25]

b. Shipper Provided Cars

i. Coal Cars

In Opening, Otter Tail assumed that the OTRR would pay no private car allowances to shippers providing coal cars, because current freight rates presumably reflect private car ownership. In Reply BNSF accepts Otter Tail's assumption.[26]

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24 See Otter Tail Rebuttal electronic workpaper, "Analyze BNSF railcar leases.xls"

25 BNSF also criticizes Otter Tail on its indexing of car lease costs. Otter Tail agrees that these criticisms are valid, and makes the appropriate changes in its Rebuttal evidence.

26 See BNSF Reply at III-D-29.

ii. Private Car No-payment Miles

BNSF raises two primary objections to Otter Tail's calculations of private and foreign non-coal car costs. First, BNSF states that Otter Tail improperly allocated no-payment car miles when developing private car-mile unit costs. Second, BNSF states that Otter Tail's car-mile calculation overstated the OTRR's car-miles because a significant amount of Otter Tail's intermodal traffic is carried in articulated and other cars that are counted in BNSF's train event data as multiple units even though they are only a single unit.[27]

Upon review, Otter Tail adopts BNSF's suggested changes for these two items in its Rebuttal evidence. Otter Tail uses BNSF's suggested private car-mile unit costs. Otter Tail also applies the same percentage reduction to general freight traffic as BNSF applied in its Reply evidence.

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[27] See BNSF Reply at III-C-74, note 106.

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Table III-D-14

Comparison of Freight Car Leasing Costs

Item (1)	Otter Tail Open (2)	BNSF Reply (3)	Otter Tail Rebuttal (4)	Difference (5)
No. of RR Owned Coal Cars[1/]				
1. H - General Service Hoppers	104	238	133	105
2. J - Gondolas	396	1,454	511	943
RR Owned Coal Car Lease Rates				
3. H - General Service Hoppers				
4. J - Gondolas				
RR Owned Coal Car Lease Costs				
5. H - General Service Hoppers				
6. J - Gondolas				
7. Total Lease Costs				
General Freight Statistics				
8. Car miles	342,035,952	220,006,804	260,850,492	(40,843,688)
General Freight Costs				
9. Foreign Car Costs	$5,215,416	$4,013,085	$4,032,721	$(19,636)
10. Private Car Costs	$24,166,931	$15,947,797	$15,473,323	$474,474
11. System Car Costs	$854,434	$4,844,193	$2,084,250	$2,759,943
Total Car Costs	$32,677,463	$36,956,162	$24,616,519	$12,339,643

[1/] In Supplemental Reply, BNSF provides 246 general service hoppers and 1,477 gondolas.

3. PERSONNEL

a. Operating Personnel

i. Staffing Requirements

In its Opening Errata, Otter Tail included 584 employees in OTRR's transportation department, 58 of which were non-train employees. In its Reply Evidence, BNSF added 50 non-train employees

and 138 Train and Enginemen ("T&E") employees. Table III-D-15 below compares Otter Tail Opening, BNSF Reply, and Otter Tail Rebuttal transportation department employees.[28]

Table III-D-15
Comparison of Transportation Department Employees

Position	Otter Tail Opening	BNSF Reply	Otter Tail Rebuttal	Difference BNSF Reply Otter Tail Rebuttal
(1)	(2)	(3)	(4)	(5)
1. VP-Transportation	1	1	1	0
2. Administrative Assistant	1	1	1	0
3. Director - Safety, Rules and Training	1	1	1	0
4. Manager - Safety, Rules and Training	1	1	1	0
5. Director - Operations Control	2	2	2	0
6. Manager - Operations Control	5	5	5	0
7. Dispatchers	14	14	14	0
8. Manager - T&E Crews	10	10	10	0
9. Director - Customer Service	1	1	1	0
10. Manager - Customer Service	5	5	5	0
11. Director - Train and Locomotive Operations	1	1	1	0
12. Manager - Train and Locomotive Operations	6	5	6	(1)
13. Assistant Managers - Train and Locomotive Operations	10	11	10	1
14. Yardmasters	0	10	0	10
15. Crew Hauler/Utility Clerk	0	40	0	40
16. Train Crew - T&E Employees	526	664	546	118
17. Total Transportation Department Employees	584	772	604	168

[28] BNSF's comparison of transportation department personnel in Reply erroneously relies on those personnel included in Otter Tail's Opening evidence rather than its Opening Errata. Therefore BNSF Table III.D.3-1 overstates the difference in Otter Tail and BNSF's evidence. In Supplemental Reply, BNSF reduced the number of Assistant Manager - Train and Locomotive Operations from 11 to 10, the number of crew handlers from 40 to 36 and the number of train crew employees from 664 to 515. As a result, BNSF's total transportation department personnel reduced from 772 to 618 in Supplemental Reply. See BNSF Supplemental Reply Narrative, Table III.D.3-1.

As is evident from Table III-D-15, above, BNSF has accepted Otter Tail's staffing of the OTRR transportation department with few exceptions. Where BNSF has included extraneous positions, it provides inadequate or no justification. The positions where the parties differ are discussed below.

(a) Train and Locomotive Operations

In Opening, Otter Tail provided for one Director-Train and Locomotive Operations to provide supervision to the Managers located at Donkey Creek, Reno, Dutch, Glendive, Mandan and Fargo. The Managers work a five day week, but are on call 24 hours per day, seven days per week. Their duties are similar to those of a Trainmaster on a Class I railroad, and they are responsible for supervising train crews, assisting customers and other operating personnel, coordinating interchanges with other railroads, conducting FRA-required and other appropriate testing, and responding to and investigating accidents and day-to-day operating problems. In addition, they provide ongoing training to locomotive engineers in proper procedures and techniques of train handling.

In addition, Otter Tail provided for 10 Assistant Managers-Train and Locomotive Operations that perform identical duties at these locations or other locations as directed by their respective managers. Staffing was determined with due consideration given to moving trains to and from the mines, to monitor activity at the OTRR's major yards, and the need to coordinate the large number of trains being interchanged with BNSF. Two Assistant Managers are located at Reno, Donkey Creek and Glendive, and one Assistant Manager is located at Moran, Snowden, Fargo and Benson.

In Reply, because of its reduction in traffic, BNSF eliminated the manager and two assistant

managers that Otter Tail provided for at Reno. However, BNSF added one assistant manager at each of the Glendive, Donkey Creek and Converse Yards.[29]

A relatively few, repetitive functions are performed at these yards by the OTRR, including: changing crews, performing FRA inspections, switching out bad order cars, adding spares to empty trains, and fueling/ servicing locomotives. All locomotive and car maintenance is performed by contractors. Further, despite the volume of traffic moving through Converse Yard the functions performed there are less complex than at most railroad yards due to the fact that Converse sees only unit trains containing one commodity. This staffing level is ample to provide the necessary supervision at all three yards given the repetitive nature of the operations. Therefore the additional positions proposed by BNSF are unnecessary.

(b) Yardmasters

BNSF's proposed level of field management at the Donkey Creek and Glendive Yards underscores its unionized Class I mentality and its tendency to add unneeded layers of supervision. It proposes the addition of a Yardmaster position staffed to provide 24 hours per day, seven days per week coverage in addition to the coverage by both Manager and Assistant Managers of Train and Locomotive Operations at the Donkey Creek and Glendive yards.[30]

The volume and kind of work at the Donkey Creek and Glendive Yards do not warrant BNSF's redundent supervisory staffing. Having coverage by both the Yardmaster and Assistant Manager of Train Operations positions is inefficient. As stated previously, a relatively few, repetitive functions are performed at Donkey Creek and Glendive Yards by the OTRR despite the volume of traffic

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29 In Supplemental Reply, BNSF eliminated the Assistant Manager - Train and Locomotive Operations at the Snowden Yard. See BNSF Supplemental Reply at III.D-7. Otter Tail has not eliminated this position.

30 See BNSF Reply at p. III-D-19 to 20.

moving through these yards. The addition of a Yardmaster position with coverage 24 hours a day, seven days per week is both inefficient and wasteful.

(c) Crew Hauler/Utility Clerk

BNSF improperly adds one crew hauler position at each of the Converse, Donkey Creek, Dutch, Moran Junction, Glendive, Snowden, Fargo and Benson Yards. BNSF staffs each of these positions 24 hours per day, seven days per week, resulting in five crew hauler staff members being added at each yard for a total of 40 crew haulers.[31] In addition, BNSF's augments each position with a four wheel drive Suburban ostensibly for moving train crews.[32] BNSF proffers that "The main duties assigned to these positions will involve the transporting of train crews within the yards and provide transportation for relief crews that have exceeded their 12 hours of service limitations on the main lines."[33]

Otter Tail rejects the argument that crew haulers are needed, at all, for relief crews that have exceeded the 12 hours of service limitation on the main line. Otter Tail and BNSF have already accounted for the transportation of relief crews limitation by including an expense for taxi service for these crews.[34]

BNSF has actually accepted Otter Tail's use of taxi service for crews as necessary,[35] and never indicates that Otter Tail's taxi service is not adequate or feasible. Instead BNSF merely adds the crew hauler positions and Suburbans. To the extent that BNSF proposes to use crew haulers for

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31 In Supplemental Reply, BNSF eliminated the crew hauler position at the Snowden Yard, thereby reducing the number of crew hauler personnel from 40 to 36. See BNSF Supplemental Reply at III.D-7.

32 BNSF provides a total of nine Suburbans for these eight positions.

33 BNSF Reply at III-D-36 to 37.

34 See Otter Tail's Opening electronic workpaper "Otter Tail_Opr_Exp.123" and Rebuttal electronic workpaper "Otter Tail_Opr_Exp_Reb.123."

35 See BNSF Reply electronic workpaper "LUMS and Car Miles (Otter Tail-BNSF) v2.xls."

relief crews on the OTRR's main line, BNSF is double counting the associated expense. In Rebuttal, Otter Tail rejects the addition of crew haulers and BNSF's double count of expenses.

However, Otter Tail does provide three (3) additional vehicles, one each at Converse, Donkey Creek and Glendive yards, for transport of crews within the yard. In each instance a departure crew driven to the head end of the train and arriving crews use the same vehicle to drive back to the yard office.

(d) Train Crew Personnel

In its Opening Evidence, Otter Tail calculated that the OTRR would require 526 T&E crew personnel. In Reply, BNSF claims that the OTRR would need 664 train crew members of which 552 would be road crews.[36] The main cause of the difference between the parties lies in BNSF's assumption that the OTRR must be overstaffed 364 days of the year in order to provide sufficient train crews on the one peak day of the year. Similar to BNSF's position with railcars and locomotives, BNSF believes that the OTRR would need to maintain capacity to meet its peak requirements at all times. This approach is particularly inappropriate with regard to staffing because Otter Tail already assumes that train crews do not work 365 days per year. Rather, crews have 95 days off per year. Thus, train crews already have a built-in "spare margin".

BNSF's position mistakenly assumes that the scheduling of on days and off days is completely inflexible, so that on the peak day, the same number of crews have the day off as on any other day of the year and none of these crews can be scheduled to work. Stated differently, to justify the high number of crews and still maintain the assumption that these crews work 270 days per year, BNSF

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[36] In Supplemental Reply, BNSF reduced the number of switch crew personnel from 24 to 16 because it would no longer be providing I&I switching service at the Glendive yard. In addition, BNSF reduced the road train crews to 411 personnel. See BNSF Supplemental Reply at III.D-8.

makes the nonsensical assumption that crews will be working the same number of shifts every day of the year as they work on the peak day of the year.

Moreover, when calculating the annual number of crew starts, BNSF failed to divide by its own peaking factor, which BNSF used elsewhere to adjust operating statistics between peak volumes and actual annual volumes, thereby substantially overstating the number of crew starts actually worked by each employee. When one corrects for this error, it is apparent that BNSF is actually assuming that T&E employees work only 200 shifts per year. Table III-D-16 below calculates BNSF's crew starts correcting for BNSF's error.

Table III-D-16
Comparison of Road Crew Counts

		Coal (1)	General Freight (2)	Total (3)
A.	**BNSF Assumption that Road Crews Work Peak Schedules Each Day**			
1.	Annualized Peak 2002 Road Crew Starts (peak Day x 365)	44,098	30,295	74,393
2.	Crew Person Starts	88,196	60,590	148,786
3.	Shifts per Employee	270	270	270
4.	BNSF 2002 Road Crew Employees	327	225	552
B.	**Corrected BNSF Calculation Using BNSF Peaking Factor**			
5.	Annualized Peak 2002 Road Crew Starts (peak Day x 365)	44,098	30,3295	74,393
6.	BNSF Peaking Factor	134%	135%	-
7.	Actual 2002 Road Crew Starts	32,909	22,441	55,350
8.	Actual Crew Person Starts	65,818	44,882	110,700
9.	Actual Crew Starts per Employee	201	199	201

Sources:
Line 1 BNSF Reply electronic workpaper "BNSF Yearly Crew Forecasts.xls."
Line 2 Line 1 x 2 crew member per start.
Line 3 Given.
Line 4 Line 2 ÷ Line 3.
Line 5 BNSF Reply Electronic workpaper "BNSF Yearly Crew Forecasts.xls."
Line 6 BNSF Reply Electronic workpaper "Locomotive and RR Owned Cars Peaking Factor OTP.xls."
Line 7 Line 5 ÷ Line 6.
Line 8 Line 7 x 2 crew members per start.
Line 9 Line 8 ÷ Line 4.

The impact of BNSF's proposed staffing on the crew utilization during the average day results in enormous numbers of employees who are idle most of the time. By dividing the crew statistics found in the table above, one finds that, under BNSF's scenario, the OTRR would employ 144 road

crew members whose only function is to ensure that the other employees would be no more likely to work during the peak day than any other day of the year. Stated differently, under BNSF's method, 144 T&E employees would have the day off on the OTRR's peak day.

Table III-D-17
T&E Employees Available and Not Working

	Item	2002 Peak Day	2002 Average Day
	(1)	(2)	(3)
1.	Annualized Crew Person Starts	148,786	110,700
2.	Days per year	365	365
3.	Crew Person Starts/Day	408	304
4.	Crews Available	552	552
5.	Crews Available and Not Working	144	248

Sources:
Line 1, Column 2 = Table III-D-16, Line 2, Column 3.
Line 1, Column 3 = Table III-D-16, Line 8, Column 3.
Line 2 = Given.
Line 3 = Line 1 ÷ Line 2.
Line 4 = BNSF Reply at III-D-41.
Line 5 = Line 4 - Line 3.

BNSF's approach is entirely inconsistent with the concept of a least cost, most efficient railroad. BNSF is also misleading, stating on the one hand that it assumes crews work 270 shifts, when in reality these individuals could really only work 200 shifts per year when using BNSF's methodology.

BNSF also completely mischaracterizes Otter Tail's calculation of crew requirements. In describing the method by which Otter Tail adjusts operating statistics from the peak period, BNSF

states that "Otter Tail compared an exaggerated 2021 volume derived by annualizing the amount of coal transported on the 'peak' day to the actual 2002 volume. In effect, Otter Tail compared a peak to a non-peak aggregate, thereby gaining itself a substantial reduction in base year crew requirements."[37]

In other words, BNSF tries to create the impression that Otter Tail is attempting to "pass off" the peak day 2021 volume multiplied times 365 days as the 2021 annual volume. This is not the case. Otter Tail's adjustment achieves two purposes in one. First, it reduces operating statistics by the difference in 2002 and 2021 traffic in the same manner as BNSF's calculations. But second, it reduces operating statistics from what is required to serve the peak day to what is required to serve the actual 2002 volume. As mentioned before, the primary difference between the parties is that BNSF believes that the OTRR should maintain peak day capacity 365 days per year. As discussed above, this leads to BNSF's particularly absurd results in regards to train crews.

BNSF also incorrectly implies that the OTRR, as designed by Otter Tail, would have insufficient road crew members to meet the peak requirements. Otter Tail calculates that 502 crews[38] would be required to meet the traffic surge of the 2002 peak day. With 526 crews available, the OTRR could meet this surge with 24 employees not working that day.[39] While BNSF may be uncomfortable with the OTRR efficiently nearing capacity to meet peak demand, this is entirely consistent with the concept of a least cost, most efficient carrier.

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37 See BNSF Reply at III.D-40.

38 This includes road, helper and switch crews. See Otter Tail Rebuttal electronic workpaper, "Peak Day 2002 Crews.123."

39 See Otter Tail Rebuttal electronic workpaper, "Peak Day 2002 Crews.123."

Otter Tail does, however, make one change in its approach to adjusting road crew statistics in response to an issue that BNSF raised in its Reply evidence. BNSF notes Otter Tail for adjusting aggregate crew requirements (including coal and general freight) by tonnage figures having to do only with coal. Upon review, Otter Tail concedes that it would be better to use aggregate statistics to adjust aggregate crew requirements. In Rebuttal, Otter Tail adjusts total crew requirements by total tonnage.

BNSF also wrongly criticizes the mechanics of how Otter Tail derived its crew starts. BNSF claims that, "While the individual errors were large, the double-counting partially offset the omissions."[40] These so-called errors appear to stem from different assumptions regarding when crew starts occur. BNSF's spreadsheets include logic such that a crew is assumed to start if a train passes through a crew change point during the peak day. Otter Tail, in contrast, used a more rigorous analysis that examined the actual number of crews on the system during the peak day. For example, if a train passed through a crew change point at 11:30 PM the day before the peak day and then proceeded through the crew district during the peak period, Otter Tail would have counted this as a crew start, while BNSF would not have. Otter Tail maintains this approach in its Rebuttal evidence.

Finally, BNSF disagrees with Otter Tail's assumption that switch crews would be manned two 12-hour shifts per day. BNSF claims, that with 270 shifts per year, 12 hours per shift, employees would work excessive hours. In regards to switch crews at Donkey Creek and Glendive, Otter Tail concedes that this is a valid point and assumes three shifts per day in its Rebuttal evidence.

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[40] See BNSF Reply at III-D-38.

As discussed in Sections III-C and III-B, Otter Tail, in Rebuttal, adds an additional switch crew in Fargo in order to provide I&I switching to a limited number of non-coal overhead trains. Given that only 2.5 trains per day require this I&I switching service in Fargo,[41] the OTRR assigns only two switch crew shifts per day at Fargo. The first shift would begin work at 8:00 a.m. and work until its assigned jobs are completed, most often in less than eight hours. The second shift would come on duty at 8:00 p.m. and work until its assigned duties are completed, again most often in less than eight hours. On the rare occasion that one of these crews is required to perform extra work, it would simply work overtime up to a total of 12 hours per shift. Based on the above, Fargo switch crews are assumed to have two shifts per day.

In regard to helper crews, BNSF claims that Otter Tail assumes that crews will work 12 hours shifts, 270 shifts per year for a total of 3,240 hours per year. BNSF rejects this notion and instead assumes helper crews will work eight hour shifts and 270 shifts per year. As described in Otter Tail's Opening evidence and in Section III-C, the OTRR requires a maximum of six helper crew consists of two-persons each working around the clock. If one assumes, that six two-person consists work three eight-hour shifts per day, 365 days per year and that any given crew member works no more than 270 shifts, then 49 T&E crew members are required to cover these six positions.[42] In actuality, Otter Tail determines the number of helper consists required using the string model based on the peak day requirements. As shown in Otter Tail's Opening Errata Exhibit III-C-1, 19 helper crews were required on the peak day, which is the basis for the inclusion of the 50 T&E crew persons in its Opening evidence. Stated differently, in Opening, Otter Tail had one more T&E crew person

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41 See Otter Tail Rebuttal electronic workpaper "minot_trncl.xls."

42 [Six 2-person consists x 3 shifts per day x 365 days per year] / 270 shifts = 49 T&E crew members.

than BNSF indicates is required for the OTRR helper service at the required locations. In Rebuttal, Otter Tail continues to use the String model to determine the required OTRR helper crews and has included helper crew personnel.[43]

(i) The Future of Crew Consists

Otter Tail has made the extremely conservative assumption that the OTRR will require two-man crews for both switching and road crews over the entirety of the twenty year SAC period. For years, railroads and unions in the United States have been negotiating over the use of remote control devices for yard operations. These devices allow a single employee to control a switch engine, rather than requiring two crew members. Remote control is already widely used by Canadian carriers such as Canadian National. Although unions have resisted the introduction of remote control in the United States, it is starting to make inroads. Among Class I carriers, Kansas City Southern recently took delivery of 50 CANAC BELTPACK systems, and CSXT is scheduled to take delivery of 75 of these devices this year. CANAC has even established a new U.S. headquarters to market the systems.[44]

It is highly likely that at least some road trains will be operated by single person crews over the next twenty years. In other countries, such as Britain, single person road crews are standard. Moreover, referring to Wisconsin Central's Australia and New Zealand operations, former Wisconsin Central CEO Ed Burkhardt said in a 1999 *Railway Age* article that,

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43 See Otter Tail Rebuttal Exhibit III-C-3.
44 See Otter Tail electronic workpaper "EXHIBIT_III-C-3.123."

> "We run single-person on almost everything in New Zealand and we are introducing it without problems in Australia. We have remote control operation well ensconced in New Zealand - practically every switching locomotive is operated by remote control. This is a big improvement in safety, among other things."[45]

Wisconsin Central attempted to promote the use of one-person road crews in the late 90's, but ran into opposition from labor. It is unlikely that labor will be able to resist single-person road operations over the entire next twenty years. Reducing crew sizes is but one example of the productivity gains likely to occur for the Class I Railroad industry that the OTRR would share.

ii. Taxi and Overnight Expense

BNSF's Reply narrative says little about taxis and overnights, except that BNSF accepts Otter Tail's unit costs.[46] However, BNSF's accounting for the number of overnights and taxi trips does differ in several areas from Otter Tail's, and these deviations are inappropriate given BNSF's acceptance of Otter Tail's crew district assumptions. For example, BNSF assumed that trains in "turn-around" service from Donkey Creek would be relieved by relief crews while loading trains. By definition there is no need for relief crews or taxi service for the Donkey Creek turn-around crews as they go on duty and off duty in Donkey Creek. BNSF never explains its reasoning of why these turn-around crews would need to be relieved. This results in an additional 936 taxi trips that should be rejected.

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45 See Otter Tail Rebuttal Workpaper, Vol. 2, p. 6010.

46 As noted previously, BNSF double counted the cost of transportation of crews by including both taxi costs and crew haulers with Suburbans to provide duplicate service.

iii. Operating Personnel Compensation

Otter Tail's Opening Evidence contains compensation rates for the OTRR that are based upon actual BNSF employee compensation in 2002. For the most part, OTRR wages are developed using the BNSF Wage Forms A and B and applied according to the job title classifications contained in the U.S. Code of Federal Regulations, Chapter X, Section 1245.5. Otter Tail also applied a 38.1 percent fringe rate to the combination of base wages, overtime and constructive allowances. When compared to the average compensation that regional railroads and even BNSF itself actually pays, one finds that Otter Tail's compensation levels for the OTRR are very generous. In spite of this, BNSF has included even higher compensation levels in its Reply Evidence.

Table III-D-18 below compares overall payroll costs per employee of various regional and shortline railroads to that of the OTRR from BNSF's Reply Evidence and Otter Tail's Rebuttal.

Table III-D-18

Comparison of Average Payroll Expenses Per Employee

	Railroad (1)	Payroll Expense (2)	Average Number Employees (3)	Average Payroll Expense (4)
1.	OTRR per BNSF	$126,544,605	1,430	$88,496
2.	OTRR per Otter Tail	$70,994,467	905	$78,447
3.	BNSF (2002)	$2,894,071,000	37,366	$77,452
4.	WCNA (2000)	$119,952,000	2,262	$53,029
5.	FECR (2002)	$49,585,000	775	$63,981
6.	Genesee & Wyoming (2002)	$68,557,000	1,400	$48,987

Source: BNSF data taken from AAR *Analysis of Class 1 Railroads 2002*, WCNA, FECR, Genessee & Wyoming from Management, Discussion & Analysis sections of these carriers' 10-K's. See Otter Tail Rebuttal electronic workpaper "RR_Info_Otter Tail.xls."

As shown above, Otter Tail's average annual compensation for the OTRR exceeds the Wisconsin Central by over $14,000 per employee and BNSF's own 2002 average compensation by about $1,000. Yet, BNSF claims that this level of compensation is not feasible for a least cost, efficient carrier and boosts the average annual income per employee by more than $10,000.

BNSF attempts to justify its high levels of compensation by creating the impression that the labor market for railroad employees is a "seller's market" and that the OTRR would have to pay high levels of compensation to compete with UP and BNSF. In fact, the Bureau of Labor Statistics' (BLS) *Occupational Outlook* says of railroad employment, "Overall employment in the railroad transportation industry is expected to decline due to productivity gains. "The BLS goes on to explain that, "Competition for available opportunities is expected to be keen. Many persons qualify for rail

transportation occupations because education beyond high school is generally not required. Many more desire employment than can be hired because the pay is good and the work steady. Employment for a majority of railroad transportation occupations is expected to decline through the year 2010 with only locomotive engineers expected to grow."[47] BNSF's image of intense competition for qualified rail labor is inconsistent with the findings of the BLS.

(a) Fringe Ratio

BNSF bases fringe benefits on the ratio of fringes per each department as found in the BNSF 2002 R-1 Annual Report Schedule 410, compared to wages and salaries for each department.[48] This results in a Transportation Department fringe ratio of percent which BNSF then applies to the average compensation figures derived from labor categories found in BNSF 2002 Wage Forms A and B. In contrast, Otter Tail calculates its fringe rate of 38.1 percent from the ratio of supplements to wages for all Class I carriers found in the 1Q02 calculation of the RCAF. Clearly, this is much more representative of what is achievable in the industry and what the OTRR as a least cost most efficient competitor can expect to pay for fringes. This is a much more reasonable way to calculate fringes, and Otter Tail continues to use this approach in Rebuttal.

(b) Train Crews

Otter Tail's Opening Evidence based train crew compensation on average straight time and overtime compensation as found in BNSF's Wage Forms A and B, increased to reflect constructive allowances that the OTRR would pay for vacations, meals and other appropriate constructive

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47 See Otter Tail Rebuttal Workpaper Vol. 2, p. 6026.

48 The one exception is the Maintenance of Way Department, where the BNSF 2002 R-1 indicates a percent fringe ratio, but BNSF used an internal budget report to derive a fringe ratio of . BNSF never explains this inconsistency, nor why it would be more appropriate than percent.

allowances. The constructive allowances included by Otter Tail adds 24 percent to straight time plus overtime wages paid to OTRR's crews.[49]

Otter Tail calculated separate wages for each of conductors and engineers and then averaged the two to develop a wage rate of $: ‹o apply to all train crew members. In Rebuttal, Otter Tail increases crew wage rates slightly to $ ⁵ to reflect the change in the constructive allowance discussed above.

In Reply, BNSF claims that Otter Tail's crew compensation levels would be infeasible and that the OTRR would only be able to hire qualified conductors and engineers to work 270 shifts per year by paying them an annual salary ⁸ The difference in Otter Tail's and BNSF's crew compensation is discussed below.

(i) Wage Rates

BNSF based its wages rates on the 2002 salaries of 16 conductors and 32 engineers who worked between 255 and 284 shifts per year. This data was taken from BNSF crew wage data for employees working on trains in the OTRR territory. In its narrative, BNSF devotes extensive verbiage to describing how hard it would be for train crews to work 270 shifts and how the OTRR would have to pay extra-high salaries for these extremely motivated employees to work that many shifts. However, examination of the data reveals that the number of shifts is not the source of difference between the parties at all. Rather, as shown in Table III-D-19 below, the payment of constructive allowances accounts for nearly the entire difference.

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[49] In Opening, Otter Tail inadvertently included the Special Pay Differential constructive allowance in place of the Vacation Granted constructive allowance. This error has been corrected in Rebuttal resulting in an increase in the constructive allowance ratio from 20 to 24 percent. See Otter Tail Rebuttal electronic workpaper, "Constructive Allowance Ratio_Reb.123."

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Table III-D-19
Comparison of Average 2002 T&E Compensation

Item (1)	Otter Tail Opening (2)	BNSF Reply (3)	Difference (4)
1. Straight Time			
2. Overtime			
3. Straight Time plus Overtime			
4. Constructive Allowances			
5. Total			

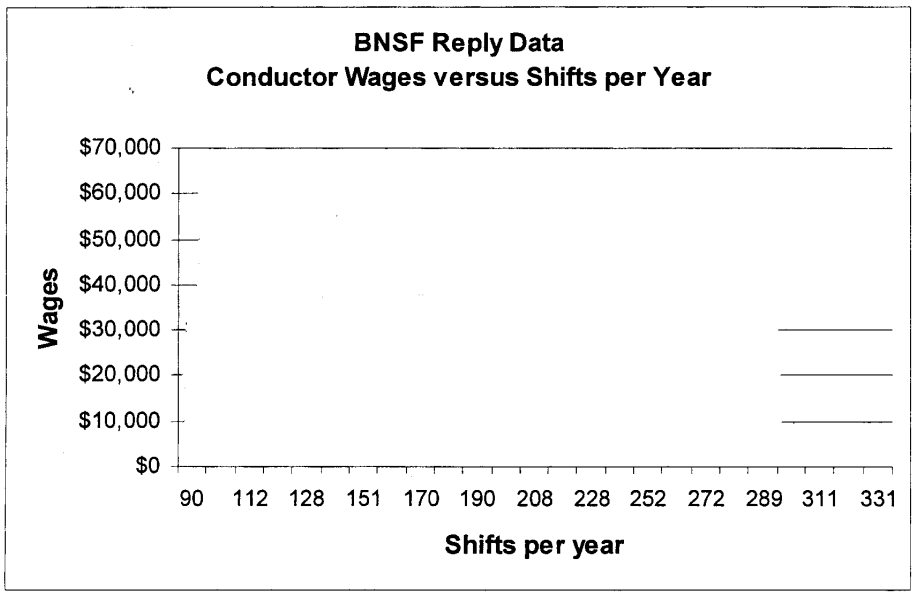
Source: Otter Tail Rebuttal electronic workpaper "Analysis of BNSF Reply Wages.xls".

BNSF's presumed straight time and overtime amount exceeds Otter Tail's by only $2,756 or 6 percent, while the constructive allowances paid exceed the amount in Otter Tail's Opening Evidence by $10,161, or 110 percent.

BNSF's own data reveals that a relationship between the number of shifts worked and compensation is spotty at best. For example, the chart below is a graph of conductor wages versus shifts worked per year, taken from BNSF's Reply data.[50] Notice that the average compensation rises steeply with the number of shifts worked between 90 and 180 shifts per year, but then the relationship breaks down above 180 shifts, so that a Conductor who works only about 180 shifts could make roughly the same as one who works 300.

[50] See Otter Tail Reply electronic workpaper "Analysis of BNSF Reply Wages.xls."

REDACTED



BNSF's assertion that crews who work more shifts on an annual basis are paid higher wages is not supported by its own data. As shown in the Table III-D-20 below, the average straight time and overtime paid to conductors and engineers who work between 275 and 304 shifts (BNSF equivalent of 290 shifts) receive straight time and overtime compensation er employee, which is only $336 more than the hat Otter Tail proposes to pay the OTRR crews who work 270 shifts per year. In addition BNSF crews working 275 to 304 shifts per year receive $2,420 less in straight time and overtime compensation than the employees used as the basis of BNSF's wages.[51]

[51] See Otter Tail Rebuttal electronic workpaper, "Analysis of BNSF Reply Wages.xls."

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Table III-D-20
Comparison of Average 2002 T&E Compensation[1/]

Item	Otter Tail Opening	BNSF Reply Crews Working 255 to 284 Shifts	BNSF Crews Working 275 to 304 Shifts
(1)	(2)	(3)	(4)
1. Straight Time			
2. Overtime			
3. Straight Time plus Overtime			

Source: Otter Tail Rebuttal electronic workpaper "Analysis of BNSF Reply Wages.xls."

By BNSF's own logic, one could just as easily conclude that the OTRR should hire T&E crews to work 290 shifts per year and pay them virtually the same as that paid by Otter Tail, since this is just as supported by BNSF data as are crews working 270 shifts that are being paid . This solution would also be more efficient as the OTRR could hire 7 percent fewer crews.[52] BNSF's analysis proves little or nothing about the relationship between crew starts and crew compensation.

(ii) Constructive Allowances

As stated repeatedly, the OTRR is not the BNSF, and OTRR would not pay all of the same constructive allowances that are a result of BNSF's union legacy. For example, two of the largest constructive allowances have to do with "short crews". One is the Special Pay Differential, which the Brotherhood of Locomotive Engineers negotiated when the U.S. Congress enacted legislation in 1991 that forced a reduction in crew consists. The United Transportation Union similarly negotiated the other short crew allowance, the Reduced Crew Allowance. Neither of these would

[52] [1 - (290 ÷ 270)] x 100.

be applicable to the OTRR, because it would start with two person crew consists as a standard. Further, BNSF has accepted the two-person crew concept for the OTRR and cannot claim that it is a "short crew" for constructive allowance purposes.

Further, even those railroads that are unionized do not necessarily pay these two constructive allowances. For example, a 1998 agreement between the United Transportation Union and the Wisconsin Central includes several constructive allowances, but does not include short crew allowances.[53] Other union related constructive allowances that are irrelevant to the OTRR include Deadheading, Guarantee, Held Away from Home.

Moreover, a recent filing by Iowa, Chicago & Eastern Railroad (ICE) demonstrates that Otter Tail's proposed T&E wages are feasible. As part of its proposed acquisition of the I&M Rail Link (IMRL), the ICE posted a notice at the workplace of all rail employees that listed wage rates at which the ICE would rehire IMRL employees. This notice was filed with the Board on May 28, 2002. The rates listed for train crews range from $107.58 to $161.36 per day.[54] At 270 starts per year, this would translate into a range of $29,047 to $43,567 per year with the middle of the range at $36,307. Even if one assumed, as does BNSF, that OTRR crews would be paid BNSF's constructive allowances and overtime equal to 46 percent base salary, the resulting salary using average IMRL wage rates would be $53,008, which is less than the $55,834 included by Otter Tail for the OTRR.

The IMRL operates between Chicago, Kansas City and Minneapolis/St. Paul, where it competes with both the Union Pacific and BNSF for qualified train crews. It faces as much or more

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53 See Otter Tail Rebuttal Workpaper, Vol. 2, pp. 6027 - 6047

54 See Otter Tail Rebuttal electronic workpaper "IMRL_Notice.pdf."

competition for labor from Class I carriers as would the OTRR. The great disparity between BNSF's proposed T&E wages for the OTRR and that paid by Otter Tail cannot be justified.

Otter Tail rejects BNSF's approach to calculating T&E wages and uses wage rates slightly higher than what was used in Opening Evidence due to a correction to the constructive allowance calculation. Table III-D-21 below compares the parties' train crew wages.

Table III-D-21
Comparison of T&E Compensation for the OTRR

	Item	Otter Tail Opening	BNSF Reply	Otter Tail Rebuttal	Difference
	(1)	(2)	(3)	(4)	(5)
1.	T&E Comparison				
2.	T&E Personnel				
3.	Total T&E Compensation	$29,331,404	$45,345,507	$31,562,076	$13,783,431

iv. Materials, Supplies & Equipment - Operating

On Reply, BNSF has included $3,689,891 for operating personnel materials, supplies and equipment compared to the amount included in Otter Tail's Opening of $767,905. BNSF accepts many of Otter Tail's material and supplies unit costs, but applies these unit costs to overstated quantities. In addition, BNSF is critical of certain assumptions made by Otter Tail and relies on unsupported alternatives.

In Opening, Otter Tail assumed that OTRR operating personnel would require a Ford Explorer SUV at each supervisory location, with a pool of four SUVs at Donkey Creek and three at Glendive.

With little explanation, BNSF includes 40 Explorers, nine Suburbans, and 12 Ford F-150 pickup trucks. Rather than keep these vehicles available as a pooled resource, BNSF assigns many of the automobiles to individual personnel. This approach makes little sense, since these vehicle become an idle resource when the individual to which a vehicle is assigned is not using it. Further, BNSF does not explain why it selected Chevy Suburbans for the OTRR. These are $38,085 vehicles, compared to the $23,151 Ford Explorer proposed by Otter Tail. Such an expensive vehicle would not be necessary for a least cost railroad.

BNSF's proposed purchase of Ford F150 pickups is also a mystery. In opening, Otter Tail assumed that equipment inspectors would use utility carts to inspect trains. This is common practice in the railroad industry. The utility carts are gas-powered vehicles that resemble oversized golf carts and are the most appropriate vehicles for slowly moving along-side trains being inspected. BNSF accepts Otter Tail's use of these utility carts, but also equips inspectors with Ford F150 pickup trucks, creating yet another double count in expenses. What the inspection crews would do with the pickup trucks is left to the imagination. Otter Tail continues to use the same motor vehicles it used in its Opening evidence with the addition of three (3) vehicles for transporting crews in the Converse, Donkey Creek and Converse yards.

BNSF has also increased costs of automobiles by subjecting them to a financing cost of 9.76 percent. Otter Tail sees no reason why the OTRR would incur these costs when car loans are available with interest rates of about half of that amount. BNSF's payment calculation also includes a bizarre twist in that it counts the automobile salvage value as a cash outflow. BNSF's depreciation tables include a 13 percent positive salvage value for automobiles, but BNSF's calculation treats this amount as a negative salvage, thus increasing the OTRR's annual payments.

Desks and chairs are another prime example of BNSF's concerted effort to include extraneous costs for the OTRR. BNSF includes an outrageous cost for desks and chairs of $1,170.52 per unit each year, conjuring up memories of the U.S. Navy's five hundred dollar toilet seats. To achieve this unit price BNSF would have the OTRR finance two sets of chairs and desks at one time, i.e., the set that it buys at time 0 and the set that it will buy in five years to replace the current set. Both sets are financed at a hypothesized 9.76 percent cost of capital, zero salvage value and a 3 percent inflation rate. Otter Tail continues to rely on its annual unit cost of $480 per desk and chair set used in its Opening Evidence.

BNSF also disagrees with Otter Tail's estimate for safety equipment of $27.50 per train crew employee. BNSF outfits OTRR employees with a variety of clothing and safety gear, including not only hard hats, reflective vests and belts and protective eye wear; but also cold and warm weather boots, cold and warm weather gloves and prescription eye wear. BNSF includes $240.87 per year for safety equipment for each T&E employee and $287.35 per MOW employee.

According to Otter Tail's experts, railroads do not typically supply employees with clothing items such as boots and gloves. Employees supply these items themselves. Furthermore, expensive prescription eye wear would be unnecessary because plano glasses fit over employees' own prescription glasses. When all extraneous items are excluded, BNSF's estimate of safety equipment is similar to the estimate of $27.50 per employee that Otter Tail originally submitted in its Opening Evidence.[55] Otter Tail continues to use $27.50 per T&E and MOW employee per year for safety equipment in Rebuttal Evidence.

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[55] See Otter Tail Rebuttal electronic workpaper "OTRR Safety Gear_Reb.xls".

BNSF envisions an OTRR that is literally brimming with two-way radios. In its investment calculation, BNSF assigns VHF mobile two-way radios to 862 operating employees. However, BNSF also equips each locomotive and most operating personnel vehicles with UHF radios. Based on BNSF's count, each train will have five radios, one on each of three locomotives and one for each crew member. BNSF's proposed excessive count of VHF radios should be rejected. In Rebuttal, Otter Tail accepts BNSF's assumption of VHF radios, but maintains the same unit cost because VHF units are less expensive than UHF units provided in Opening.[56]

The largest item in BNSF's proposed Material Supply & Equipment costs is the car parts inventory for equipment inspectors, totaling $1,824,888. This is based upon Otter Tail's estimated car parts inventory of 3,314 air brake hoses, 13,255 brake shoes with a total cost of $152,074. For some inexplicable reason, BNSF multiplied Otter Tail's estimate by 12, so that the OTRR would consume 39,768 air brake hoses and 159,060 brake shoes per year. Otter Tail envisioned that the inspectors' parts inventory would only be used as a buffer stock that the OTRR would have to keep on hand. If anything, Otter Tail's estimates were conservative. In BNSF's Reply evidence, this enormous car parts inventory is completely unsupported and should be rejected as unsubstantiated and inconsistent.

BNSF includes in its materials and supply operating expense an amount of $691,091 for travel expenses. According to BNSF's workpapers, this amount equals five percent of annual compensation for all operations and mechanical staff. BNSF provides no explanation as to the source of the five percent or why it should be applied to all staff members. Otter Tail also includes

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[56] See Otter Tail Opening Workpaper, Vol. 4, pp. 2929-2930.

an amount for employee travel, but considerably less, at $53,336. Otter Tail assumes that each employee of Director level or above would be granted a travel budget. The cost per employee is based upon a survey by Runzheimer International, which found that the average travel cost per corporate business traveler was $6,667 in 2002.[57] Operating personnel of Manager and below would already have access to company vehicles for local travel. BNSF's estimate is unsupported and should be rejected.

b. Non-Operating Personnel

i. Non-Operating Personnel Staffing

Non-operating personnel consists of engineering and maintenance of way and mechanical staff. For the Board's convenience, Otter Tail discusses the staffing of the maintenance of way department in section III-D-4 to correspond to BNSF's discussion in Reply.

As to the remainder of the mechanical staff, BNSF states in its Reply Narrative that it accepts Otter Tail's staffing requirements with one exception,[58] i.e. it adds a second car inspector position at Converse, manned around the clock, which it contends requires four additional inspection personnel. BNSF states that these inspectors can make minor repairs to bad-order cars, when not performing inspections. As explained in Otter Tail's Opening evidence, empty trains arriving at Converse will have just been inspected by BNSF at its Guernsey yard approximately 100 miles away. Given that bad-order cars will have been removed from the empty coal trains at Guernsey, it is highly unlikely that there will be additional bad order cars when the trains arrive at Converse. Moreover,

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57 See Otter Tail Opening Workpaper Vol. III, p. 2958.

58 See BNSF Reply at III.D-11. In Supplemental Reply, BNSF reduces the number of inspectors at Glendive yard from five (5) positions to three (3) positions because of its elimination of normal rerouted traffic. This reduces the number of personnel by nine. See BNSF Supplemental Reply at III.D-11.

to the limited extent that a bad order car is found, OTRR's mechanical contractor will repair the car, not an OTRR inspector. There is no need for this additional position and four additional inspectors. In Rebuttal, OTRR continues to provide for only one inspector position at the Converse Yard.

As stated previously, BNSF claims that it has accepted Otter Tail's staffing for the mechanical department with the exception of the addition of one inspector position at the Converse Yard. Review of BNSF's workpapers and Table III.D.3-5, reveals that BNSF has also added, without reference or explanation, a $69,000 per year administrative assistant to the mechanical staff. This position is not required and Otter Tail does not add the administrative assistant to the OTRR staff.[59]

ii. Non-Operating Personnel Compensation

In its Opening evidence, Otter Tail based non-operating personnel compensation levels on data contained in BNSF's 2002 Wage Forms A and B. The resulting average compensation is $63,780. In Reply evidence, BNSF's average compensation for non-operating personnel was slightly lower at $59,296. BNSF organized its departments in a somewhat different manner. Otter Tail placed the Vice President - Engineering and Mechanical and his Administrative Assistant in the same department as the Maintenance of Way function, while BNSF included this individual in a separate department. Excluding the Vice President - Engineering and Mechanical and the administrative assistant, BNSF's average compensation for non-operating personnel is $57,816. Although BNSF's proposed compensation levels are lower, Otter Tail continues to use the compensation levels for non-operating personnel developed in its Opening Evidence.

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[59] In Supplemental Reply, BNSF at III.D-11, indicates that it added the Administrative position to the OTRR staff, however, it provides no explanation as to why this position is needed.

iii. Materials, Supplies and Equipment - Non Operating

Discussion of materials, supplies and equipment for non-operating personnel is included with the discussion of materials, supplies and equipment for operating personnel in Section III-A-3-b above.

c. General and Administrative Personnel

General and Administrative ("G&A") Expense includes personnel, materials and supplies and other expenses such as start-up training costs. In Opening, Otter Tail included $11.3 million for G&A costs. In Reply, BNSF included $22.3 million. The largest difference between Otter Tail and BNSF evidence relates to the number of personnel and compensation for the individual positions. Most of what drives the difference in Otter Tail's and BNSF's G&A expense is BNSF's failure to recognize the unique nature of the OTRR and BNSF's treatment of the OTRR as a typical Class I carrier.[60]

BNSF's starting point for staffing the OTRR railroad's management is the staffing levels at multi-commodity regional railroads such as the Wisconsin Central North America ("WCNA"), Montana Rail Link ("MRL"), the Illinois Central ("IC"), smaller Class I Railroads such as the Kansas City Southern ("KCS"), and in some instances BNSF itself. Relating the OTRR's staffing requirements and compensation levels to these kinds of railroads is symptomatic of a problem that pervades BNSF's approach to this issue. Virtually all of the railroads cited by BNSF are common carriers that transport a wide variety of commodities in a variety of single car and multiple car

[60] In Supplemental Reply, BNSF reduced its G&A staff by a total of 18 people because of its elimination of the rerouted non-coal traffic.

shipments, serving hundreds of origins and destinations in mixed manifest and local trains over networks that consist of both main lines and dozens of branch lines.

The kinds of comparisons on which BNSF relies, combined with the experience of the former BNSF operating officers who provided input on G&A staffing, have resulted in a G&A plan that is very similar to the staff organization of a typical Class I railroad.

In short, BNSF has inflated the OTRR's staff far beyond the needs of an efficient, railroad offering only unit coal train and non-coal overhead trainload service. Comparing the service with any Class I railroad or even a large regional railroad is not appropriate. Instead the G&A staffing should be based on the requirements specific to the OTRR. BNSF's staffing proposal is totally inconsistent with the concept of a least-cost, most-efficient SARR that carries only coal traffic in unit train service and non-coal traffic in overhead trainload service.

BNSF goes to great lengths to categorize the OTRR as a Class I railroad and then criticizes Otter Tail's proposed G&A structure as inadequate to support the activities of a Class I railroad. BNSF attempts to set up a straw man for the sole purpose of knocking it down.

Looking at the route miles served from BNSF's Class I examples, OTRR could hardly be categorized a Class I railroad. As shown in Table III-D-22 below, even the smallest of the Class I carriers have double the route miles of the OTRR.

Table III-D-22
Comparison of OTRR
and Class I Carrier Route Miles

	Railroad (1)	Route Miles (2)
1.	OTRR (Otter Tail)	1,284
2.	IC	2,544
3.	KCS	3,102
4.	Soo	3,225
5.	NS	21,558
6.	CSX	23,160
7.	BNSF	32,512
8.	UP	33,141

Source: Analysis of Class I Railroads.

BNSF argues in a number of instances that the OTRR's G&A staffing should be higher because other carriers of purportedly "comparable size" have G&A headcounts that are much larger than what Otter Tail has specified for the OTRR. For example, BNSF makes many comparisons between the OTRR and the WCNA. However, operations of these two carriers are not at all similar, as evidenced by the nature of the traffic.

The OTRR would derive 77 percent of its revenues from unit coal traffic. In contrast, according to the 2000 Wisconsin Central 10-K, paper and other forest products comprised 42.5 percent of the WCNA 2000 freight revenues. Forestry products are primarily a carload business, which is far more complicated to manage than unit train operations.

BNSF witness McCarren has even described the complexity of carload traffic in a November 2000 *Railway Age* article entitled, "Why is carload service so unreliable?" Mr. McCarren described the problem of the carload business, saying that, "The structure of the industry has changed dramatically, and there has been innovation in the design of intermodal and unit train products. However, the traditional carload product has seen little if any improvement. 'Loose car' railroading hasn't conquered its greatest problem: transit time unreliability." Mr. McCarren goes on to describe the problem, commenting that, "The major problem is the random nature of carload business, which is fundamentally much more complicated than trainload business because it is both volume- and time-variable... This unpredictable variability is a major factor in transit time unreliability, as railroads are forever guessing how much and where they need staff and equipment."[61]

In contrast to the highly coordinated activities required to provide timely carload service, the OTRR would have more steady and consistent capacity demands. The OTRR would handle (i) coal trains making standard runs back and forth between mines and interchange or customer locations, or (ii) steady streams of non-coal overhead trains. Rather than guessing where to send crews or equipment among many customer stations, the OTRR would receive and deliver coal trains or general freight trains at only eight locations where it interchanges with the BNSF or the RRVW. The OTRR would not have to coordinate irregular blocks of cars like WCNA, because it handles only unit train and trainload traffic.

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[61] See Otter Tail Rebuttal Workpaper Vol. 2, p. 6049.

Another striking difference is the mix of originated, terminated, overhead and local traffic for the OTRR compared to the Wisconsin Central. Table III-D-23, below shows each carrier's percent of revenue derived from these traffic types.

Table III-D-23
Comparison of Percent of System Revenues

	WCNA (1)	OTRR Otter Tail (2)	OTRR BNSF (3)
Local	23%	3%	5%
Originated	25%	74%	68%
Terminated	43%	0%	0%
Overhead	9%	23%	27%

Source: WCNA statistics from the Wisconsin Central 2000 10-K.

As can be seen from Table III-D-23 above, 66 percent of the Wisconsin Central's traffic is local or terminated. This contrasts to no terminated traffic on the OTRR, and local traffic consisting of only one power plant. Nine percent of the WCNA traffic is overhead, compared to 27 percent for the OTRR using BNSF estimates.

BNSF also includes the IC and the KCS in the OTRR "peer group." In fact, these also are very different operations. Again, unit train and trainload traffic is 100 percent of the OTRR's traffic, whereas unit trains are only 15 percent of the car miles on the Illinois Central and 30 percent of car miles on KCS as demonstrated on Table III-D-24, below.

Table III-D-24
Comparison of Traffic - Car Miles

		IC (2001) (1)	KCS (2002) (2)	OTRR Otter Tail (3)
1.	Unit Train/Trainload	15%	30%	100%
2.	Way Train	4%	17%	0%
3.	Through Train	81%	54%	0%

Source: KCS, IC data from respective R-1 Annual Reports, Schedule 755.

BNSF also compares the OTRR to Montana Rail Link (MRL), describing MRL as a "smaller" carrier than the OTRR. While detailed information is not readily available on MRL because it is privately held, in some respects this carrier can hardly be described as "smaller" than the OTRR. According to the MRL web site, the company has 100 stations. This is in contrast to the OTRR, which has only 30 stations, including 21 origins served, one destination and eight interchange points.

In sum, for all of BNSF's graphs and calculations, it has failed to identify a single railroad that operationally is similar to the OTRR. No railroad of BNSF's alleged peer group depends solely on a single commodity and overhead trainload traffic for its revenue. No railroad in this peer group originates traffic from so few customers as OTRR. Every railroad in BNSF's peer group has hundreds or thousands more receiving customers than OTRR's single power plant.

The OTRR is by definition a unique railroad. That is not to say that one cannot draw valid comparisons from real railroads with similar operations. For example, BNSF postulates that the OTRR operating ratio and revenue per employee are "far fetched" and unattainable. However, while Mr. Sugar was employed by Emons as CFO from 1988 through 1992, one of Emons operating

companies, Yorkrail, consistently achieved an operating ratio between 50 percent and 60 percent. While Mr. Sugar was employed at RailAmercia from 1995 to 2000, he observed that the South Central Tennessee Railroad and the Otter Tail Valley Railroad consistently achieved operating ratios between 50 percent and 60 percent. For the past four years, while Mr. Sugar has been with the SCFE, it has achieved operating ratios between 56 percent and 62 percent each year. All four of these railroads had some common characteristics – they handled a limited number of commodity types, served fewer than 30 customers, and shipped or received a substantial volume of multi-car orders of ten or more cars. Were these carriers to handle only unit train and trainload traffic their operating ratios would likely be even lower.

BNSF also states that the OTRR's Railroad Revenue per Employee is unrealistically high and unattainable. In 2001, the SCFE, however, achieved Railroad Revenue per Employee of $446,400, nearly twice the revenue per employee offered up by BNSF. Most of the SCFE's activity is comprised of short-haul movements, of less than 50 miles, of a low rated, low tonnage commodity – sugar cane. It is reasonable to assume that the OTRR, hauling unit trains and trainload overhead traffic, would achieve a substantially higher revenue per employee than does the SCFE.

According to BNSF, the OTRR's G & A staffing levels are far below what would be expected even from the most efficient carrier. Mr. Sugar and Mr. Conser offer up as a real world example the G & A staffing levels from one of Mr. McCarren's own comparables – RailAmerica, as it was staffed in January 2000 prior to its acquisition of Railtex. Mr. Sugar and Mr. Conser both worked for RailAmerica in management capacities for 5 and 14 years, respectively, and have first hand knowledge of the staffing levels of RailAmerica at that time.

In January 2000, RailAmerica, was a public company, operating 18 railroads in the U.S. and Canada over approximately 3,100 route miles and serving over 200 customers with approximately 500 employees in North America (source: RailAmerica, Inc. 1999 10-K).

BNSF contends that RailAmerica has "totally different characteristics from a large single system railroad and, therefore, is not comparable to the proposed OTRR"; however, RailAmerica is included in every one of BNSF's comparison charts.[62] Messrs. Sugar and Conser cannot identify a single reason why a single system railroad would have a radically different G & A organization than a multi-line holding company. In fact, RailAmerica has all of the G & A departments Otter Tail proposes for the OTRR and nearly all the departments proposed by BNSF.

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62 See BNSF Figures III.D.3-1 through D.3-6.

Table III-D-25

Comparison of OTRR and RailAmerica G&A Staff

		Number of Employees		
		OTRR	RA	BNSF
	(1)	(2)	(3)	(4)
1.	President's Office	2	5	3
2.	Finance and Accounting	20	14	40
3.	Information Technology	9	1	12
4.	Law and Human Resources	9	4	16
5.	Marketing	3	4	23
6.	Materials and Purchasing	0	0	3
7.	Real Estate	0	0	2
8.	Investor Relations	0	2	0
9.	Corporate Development	0	1	0
10.	Grand Total	43	31	99

Source: Otter Tail Rebuttal Electronic Workpaper "OTRR-RailAmerica G&A Comparison.wpd."

The disparity between OTRR's proposed G & A structure and that of BNSF's proposal is focused most acutely on two departments -- Finance & Accounting and Marketing. Under BNSF's proposal, these two departments contain 40 people more than Otter Tail's staffing[63] because of the dubious assumption that OTRR's merchandise traffic would "likely move on a 'Rule 11' basis." Contrary to BNSF's assumption, there is no evidence offered to support that adopting Rule 11 rates, marketing and billing is either likely or desirable.

[63] In Supplemental Reply, BNSF reduced the size of its Finance & Accounting and Marketing departments by seven and nine people respectively because of its elimination of the rerouted non-coal traffic. See BNSF Supplemental Reply at III.D-13 to III.D-14.

Messers. Sugar and Conser find BNSF's Rule 11 assumption to be nonsensical as most all traffic moves via contract or published rates with very little traffic moving via Rule 11 rates. Moreover, carriers typically use Rule 11 rates only as "catch all" rates for unexpected traffic or in those circumstances where a customer demands Rule 11 rates. Further, Messers. Sugar and Conser indicate in their experience, Rule 11 rates are usually higher than corresponding joint rates in order to discourage their use and in order to help cover the additional cost associated with settlement of the rates.

Without BNSF's Rule 11 assumption, there is no need for the separate merchandise marketing directors and market managers in Forest products, Industrial products, Agricultural & Food products, Intermodal & Automotive products and a Tariff administrator. Likewise, without Rule 11 billing to administer, there is no need for the additional 11 positions in Revenue Accounting and Revenue Analysis. Both organizational proposals show a like number of individuals in most of the other primary Finance & Accounting functions of Disbursements, Payroll, and Taxes.

As a an overhead bridge carrier moving traffic only to and from BNSF, the OTRR would not employ Rule 11 rate setting. Instead it would simply negotiate a division agreement or haulage agreement with its single connecting carrier, BNSF.

Messrs. Sugar and Conser believe that it is far more likely that OTRR, as a bridge carrier for BNSF's merchandise traffic, would enter into a haulage agreement with BNSF, its sole merchandise customer. Haulage agreements are frequently long term contracts with an annual adjustment factor. Witness Sugar has personally been involved in the drafting of two such agreements - one between the South Central Florida Express and the Florida East Coast Railway; the other between the St. Lawrence and Atlantic Railroad (Emons Transportation Group) and Canadian National Railway.

These two arrangements are neither unique nor unusual within the railroad industry and both extend beyond twenty years.

In sum, to appropriately staff the OTRR, one must recognize the unique characteristics of the OTRR rather than merely assume that it is a typical Class I Carrier.

i. Staffing

In Opening, Otter Tail initially provided for a total of 43 G&A employees. Predominantly senior management and other staff personnel at the railroad's Donkey Creek headquarters. The positions involved are shown in Table III-D-6 on page III-D-30 of Otter Tail's Opening Narrative. For a variety of reasons, Otter Tail believes that its G&A staffing for the OTRR as presented in its Opening Evidence is entirely appropriate. These staffing levels were developed by Otter Tail's Witnesses Sugar and Conser. Mr. Sugar is experienced in managing short-line and regional railroads. He is currently President of the South Central Florida Express ("SCFE"), and has worked in management positions at both Emons Transportation and RailAmerica. Mr. Conser is also experienced in managing short-line and regional railroads. He was previously Vice President of Transportation at RailAmerica. He held previous positions at the Genesee & Wyoming Railroad, the Providence & Worcester Railroad, and the Penn Central Railroad.

In Reply, BNSF has provided for a total of 99 G&A employees or over double the number of G&A employees required according to Otter Tail's Opening Evidence.[64] A comparison of the G&A personnel provided for in Otter Tail's Opening, BNSF's Reply and Otter Tail's Rebuttal is set forth in Table III-D-26 below.

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[64] In Supplemental Reply, because of its elimination of rerouted non-coal traffic BNSF reduces its G&A staff to 88 personnel. See BNSF Supplemental Reply at III-D-13 to III-D-17.

Table III-D-26

Comparison of G&A Department Employees

Department/Position (1)	Otter Tail Open (2)	BNSF Reply (3)	Otter Tail Rebuttal (4)	Difference (Col. 3 - Col. 4) (5)
1. President's Office				
a. President	1	1	1	0
b. Administrative Assistant	1	1	1	0
c. Corporate Secretary	0	1	0	1
Subtotal - President's Office	2	3	2	1
2. Finance and Administration				
a. Vice President – Finance	1	1	1	0
b. Secretary	1	1	1	0
c. Vice President – Treasurer	1	1	1	0
(i) Assistant Treasurer	0	1	0	1
d. Cash Manager	1	2	1	1
e. Controller	1	1	1	0
f. Assistant Controller - Revenue	1	1	0	0
(i) Manager - Revenue	0	2	1	2
g. Director - Taxes	1	1	0	0
(i) Director – Financial Reporting	0	1	0	1
h. Manger Financial Reporting	1	1	1	0
(i) Property Accounting Analyst	0	1	0	1
(ii) Sr. Financial Analyst	0	3	0	3
(iii) Manager – Accounting	0	1	0	1
i. Staff Accountant	1	0	1	(1)
j. Revenue Accounting Clerk	3	8	3	5
k. Assistant Controller – Disbursements	0	1	1	0
(i) Manager – Accounts Payable	0	1	0	1
(ii) Manager - Payroll	0	1	1	0
l. Director Revenue Accountants	0	1	0	1
m. Manager Revenue Analysis	0	1	0	1
n. Revenue Analysts	0	2	0	2
o. Manager Car Hire	1	1	1	0
p. Disbursement Clerks	2	2	2	0
q. Payroll Clerks	2	1	2	(1)

(i) Manager Misc. Billing	0	1	0	1
r. Costs and Budget Clerk	1	1	1	0
s. Secretary	1	0	1	(1)
(i) Director – Internal Audit	0	1	0	1
Subtotal – Finance and Accounting	20	40	21	19
3. Information Technology				
AVP – Information Technology	0	1	0	1
a. Director	1	1	1	0
b. IT Specialists	8	10	8	2
Subtotal – Information Technology	9	12	9	3
4. Legal Affairs Department				
a. General Counsel	1	1	1	0
b. Staff Attorney	1	1	1	0
c. Secretary/Paralegal	1	1	1	0
Subtotal – Legal Affairs Department	3	3	3	0
5. Human Resources Department				
a. Vice President – HR	1	1	1	0
b. AVP – Safety & Claims	0	1	0	1
c. Director – Safety & Loss Control	0	1	0	1
(i) Manager - Security	0	1	0	1
d. Director – Recruitment	1	1	1	0
e. Director – Personnel	1	1	1	0
(i) Human Resources Coordinator	0	3	0	3
f. Director – Compensation & Benefits	0	1	1	1
g. Analyst	1	1	1	0
h. Claims Manager	1	1	1	0
i. Secretary/Administrative Assistant	1	1	1	0
Subtotal – Human Resources	6	13	7	6
6. Marketing Department				
a. Vice President - Marketing	1	1	1	0
(i) Secretary	0	1	0	1
b. AVP – Coal Marketing	0	1	0	1
c. Director – Coal Marketing	0	1	0	1
d. Manager – Coal Marketing	0	3	0	3
e. Marketing Analyst (Coal)	2	1	2	(1)

(i) AVP – Merchandise Marketing	0	1	0	1
(ii) Director Forest Products	0	1	0	1
(i) Market Mgr. – Forest Products	0	1	0	1
(iii) Director Industrial Products	0	1	0	1
(i) Market Mgr. – Industrial Products	0	3	0	3
(iv) Director Agricultural/Food Products	0	1	0	1
(i) Market Mgr. – Ag/Food Products	0	2	0	2
(v) Director Intermodal/Automotive	0	1	0	1
(i) Market Mgr – Intermodal/Auto.	0	2	0	2
(vi) Director of Marketing Adm.	0	1	0	1
(i) Tariff Administrator	0	1	0	1
Subtotal – Marketing	3	23	3	20
7. Materials and Purchasing Department				
a. Director of Purchasing	0	1	0	1
(i) Manager of Purchasing	0	2	0	2
Subtotal – Purchasing	0	3	0	3
8. Real Estate Department				
a. Director of Real Estate	0	1	0	1
b. Manager of Real Estate	0	1	0	1
Subtotal – Real Estate	0	2	0	2
Total - G&A	43	99	45	54

(a) President's Office

Otter Tail provided for a President's office consisting of two people, the President and CEO, and an Administrative Assistant. BNSF accepts this staffing but adds a Corporate Secretary as a separate position. There is no reason for an efficiently-managed SARR to have a separate Corporate Secretary, whose functions are almost entirely ministerial.[65] Mr. Sugar notes that neither

[65] The principal legal function performed by the Corporate Secretary is to keep minutes of Board Directors' meetings. As the OTRR is not a publicly-owned company, there are no public shareholder meetings requiring the preparation of proxies, elaborate meeting notices, or meeting minutes.

RailAmerica nor Emons Transportation Group had corporate secretaries when he was employed there. The corporate secretary's activities were adequately performed by outside counsel who attended board meetings or by the General Counsel.

In Opening, Otter Tail provided for a five member Board of Directors consisting of three employee members and two outside directors. In Reply, BNSF had a seven member Board with five outside directors. In Rebuttal, Otter Tail accepts BNSF's seven member Board of Directors but has only four outside directors. Otter Tail agrees that an outside Board member with sufficient financial expertise should head up the Audit Committee.

(b) Finance and Accounting

Otter Tail has provided for a Finance and Accounting staff of 20 employees, while BNSF suggests a staff of twice that amount.[66] The rejection of BNSF's unrealistic and inefficient "Rule 11" assumption for the Accounting and Finance department has already been discussed. Without this requirement, the OTRR has no need for all the revenue accountants, revenue managers, director of revenue accountants, revenue analysts, and manager of revenue analysts proposed by BNSF.

Additionally, Mr. McCarren created a sub-group of four finance and accounting specialists to analyze revenue trends and resolve billing disputes. Since the OTRR, as proposed by Messrs. Sugar and Conser, would employ long term coal contracts and joint rates, there is no need for this subgroup of specialists. The limited requirements for revenue analysis and to resolve billing disputes can be delegated to the staff accountant. Overlooked in BNSF's analysis is the relative simplicity of the

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[66] In Supplemental Reply, because of its elimination of rerouted non-coal traffic, BNSF reduces the Finance & Accounting Department staff by one revenue manager, two revenue accounting clerks, one revenue analyst, one senior financial analyst, one cash manager and one disbursement clerk. See BNSF Supplemental Rebuttal at III-D-13.

OTRR financial and accounting activities. For coal traffic, a unit train is treated as a single revenue line with the OTRR's division computed as a percentage of the net tonnage per train. On a junction settlement basis the entire train would be a single line item. OTRR's business is highly repetitive, back and forth to the same customers and back and forth with the same train consist, frequently in shipper provided equipment.

BNSF provides for a property accounting analyst but does not describe what this individual does. BNSF also adds a Manager of Miscellaneous Billing primarily to handle car repair billing. Since car repair is an outsourced activity, the OTRR has assigned that accounting activity to the outsource firm.

Messrs. Sugar and Conser agree with BNSF on the addition of a Payroll Manager to oversee the two payroll clerks.

(c) Information Technology

BNSF accepts Otter Tail's capital and operating cost for the Information Technology department, however, BNSF proposes 12 employees for OTRR's Technology Department as compared to Otter Tail's nine.[67] The nine people proposed in Otter Tail's Opening Evidence is the correct staffing for the OTRR Railroad based on the needs of the company. BNSF attempts to justify the proposed staff for OTRR of 12 people based on WCNA's staffing of 15 IT personnel and six consultants. BNSF states that the proposed OTRR revenues are very similar to WCNA's with comparable revenues and therefore concludes that its IT staff requirements are also similar.

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[67] In Supplemental Reply, because of its elimination of rerouted non-coal traffic BNSF reduces the OTRR IT staff by one specialist. See BNSF Supplemental Reply at III-D-14.

Revenues have absolutely nothing to do with IT staff requirements. From an IT perspective there is no comparison between the OTRR's unit train and overhead trainload operation and WCNA's operation, which handles numerous commodities, various car types, hundreds of customers, hundreds of origin and destination pairs, yard operations to handle blocking, etc. BNSF's proposal does not consider the number of computer transactions processed by the two railroads. At the very least WCNA would have two to three times more computer transactions than OTRR due to its complex operation. Transactions processed must be considered in determining IT and Communications staffing requirements because that determines the level of activity the IT staff and Communications technicians will have to handle on a daily basis.

BNSF proposed that OTRR would need an Assistant Vice President, director, and ten specialists to run its information technology and communication functions. Mr. Kruzich strongly disagrees with the additional staffing. The nine people proposed in OTRR's Opening Evidence are the correct staffing for the OTRR based on the needs of the company. BNSF proposes to have an Assistant Vice President for the OTRR operation. This is clearly excessive. When Mr. Kruzich was CIO on the Kansas City Southern with a staff of 60 full time employees and as many as 20 contractors maintaining and developing applications, he had one Assistant Vice President that covered all functions such as transportation, revenue, car accounting, marketing, human resources, dispatching, crew calling, payroll, cost system, measurements, engineering system, mechanical, etc. A large portion of the systems on the KCS at that time was developed in-house and maintained with the above stated staffing. The Kansas City Southern operations are much more complex than the OTRR and, most importantly, the core systems (transportation, revenue and car accounting) on the OTRR will be outsourced to RMI.

BNSF also indicated that Otter Tail did not make clear in its filing who will be responsible for the voice communication network. In Opening, under Information Technology Staffing, two Network Engineers are provided for and these individuals are responsible for handling telecommunications issues. When Mr. Kruzich was Vice President of Communications on the Kansas City Southern, he had one full time position to handle all voice telecommunications on the entire system. Kansas City Southern had six times the telephones and call volumes at the OTRR, on any busy day. BNSF's proposal to establish an additional position in the Engineering Department to handle the Voice Communications Network unnecessary. The two Network Engineers proposed in Otter Tail's Opening Evidence are more than sufficient to handle these duties along with the other IT duties identified in the Opening Evidence.

BNSF has also increased the IT staff by an additional one PC Technician and one Application Programmer for financial software applications. Otter Tail has provided one program developer for handling such things as upgrades and maintenance for all off the shelf software (Accounting), dispatching, and crew calling. BNSF's assumption that WCNA and OTRR have the same needs is clearly unrealistic. The WCNA has many more complex accounting issues than Otter Tail due to the fact that WCNA has hundreds of customers, which requires a much far more sophisticated larger accounts receivable and collection system, as well as miscellaneous billing system (switching and demurrage, etc.), property accounting system, payroll and timekeeping systems and other heavy volume systems. This heavy transaction volume is due to the complexity of WCNA's operation with hundreds of customers, commodities, car types, etc., compared to OTRR's fewer customers, fewer car types, single commodity, limited overhead traffic, and multiple car billing for a large portion of its traffic. This difference in operation has a dramatic

impact in determining accounting staffing needs. Otter Tail has provided sufficient staffing of nine people in its Opening Evidence to handle all of the IT functions, especially since a major portion of these functions are outsourced to RMI.

The additional PC Technician proposed by BNSF is based on its 99 person G&A staff, which is unnecessary and not accepted. As a result, there is no need to add an additional PC technician to the IT staff.

(d) Legal Department

BNSF accepted Otter Tail's proposed staffing for the OTRR legal department.

(e) Human Resources

As described in OTRR's opening statement, the responsibility for safety and security would rest with the operating departments. BNSF has accepted Otter Tail's safety related personnel in both the Transportation and Mechanical and Engineering Departments. The three additional positions, including Assistant Vice President-Safety and Claims, Director-Safety and Loss Control, and Manager of Security, which BNSF includes are redundant and unnecessary.

Messrs. Sugar and Conser agree that a Director of Compensation and Benefits would be a desirable addition to the Human Resources staff, as an added interface with employees. BNSF also adds three Human Resources coordinators to the staff without specifying any tasks that these individuals would perform.[68] Otter Tail excludes these three positions in Rebuttal.

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[68] In Supplemental Reply, because of its elimination of rerouted non-coal traffic, BNSF reduces the Human Resources Coordinator position by one person. See BNSF Supplemental Reply at III-D-14.

(f) Marketing

BNSF provides an extensive discussion on the need for a full service, all inclusive marketing department capable of addressing the needs of hundreds of customers in a broad variety of industries. In reality, OTRR has only one non-coal, merchandise customer, the BNSF.[69] As an overhead carrier, OTRR does not need direct customer marketing to a variety of industries. In Mr. Sugar and Mr. Conser's experience, use of Rule 11 rates is very limited in the industry and are a "catch-all" rate of last resort, usually provided only at a customer's insistence. Further, Rule 11 rates are rarely offered by overhead carriers. BNSF proposed use of Rule 11 rates is merely a vehicle to over staff the OTRR.

Otter Tail believes that BNSF also overstates the marketing staff required to handle the coal traffic. BNSF provides for a coal marketing staff of six people to service a total of twenty coal customers, and yet the OTRR directly serves only one customer, the Big Stone power plant. Further, the OTRR is the short-haul coal carrier for over 98 percent of its coal traffic. Given the circumstances, it is unlikely that BNSF would allow the OTRR to take the lead in coal marketing and contract negotiations. Messrs. Sugar and Conser see no reason to duplicate BNSF's extensive coal marketing activities since BNSF is certain to take the lead in contract negotiation, pricing, and customer relations.

In summary, Otter Tail has revised upward its G & A headcount for two individuals: Manager of Payroll and a Director of Compensation and Benefits. Otter Tail disagrees with the addition of

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[69] In Supplemental Reply, because of its elimination of rerouted non-coal traffic, BNSF reduces the Marketing Department by nine personnel. See BNSF Supplemental Reply at III-D-13 to III-D-14.

52 superfluous or redundant positions which are based primarily on BNSF's faulty "Rule 11" assumption.

(g) Materials and Purchasing

As Otter Tail has explained in its Opening evidence, since most of OTRR's purchasing activities will be controlled at the operating level, Otter Tail has included all the required personnel in the Mechanical and Engineer Department. OTRR would employ a tiered approval process for larger purchases and long term contracts. It is common among finance departments to have such larger contracts reviewed by the Treasurer and/or the Controller. OTRR would employ the same strategy and there is no need for the extra layer of administration.

(h) Real Estate

With a newly configured physical plant and right of way, OTRR has no need for a Real Estate department. Further, over the 20 year DCF model the OTRR will not acquire or dispose of any real estate, and therefore has no need for real estate personnel.

ii. Compensation

The compensation for the OTRR's General and Administrative employees developed by Otter Tail in its Opening Evidence is shown in Table III-D-7 on page III-D-42 of Otter Tail's Opening Narrative, with further details provided in Otter Tail's Opening electronic spreadsheet "Ottertail Salaries.123."

BNSF disputes the compensation levels developed by Otter Tail, and argues that substantially higher salaries are needed to attract qualified management personnel. In assessing the parties' different positions on compensation under the SAC concept of barrier-less entry, it must be assumed that qualified people are available to fill the needed staff positions.

On Opening, Otter Tail developed salaries based on a combination of compensation paid to executives of other regional railroads and BNSF's 2002 Wage Forms A and B together with the Uniform System of Accounts ("USOA") classification of employees.[70] On Reply, BNSF developed salaries based on a combination of the experience of its Witness McCarren and its BNSF's 2002 Wage Forms A and B together with the USOA.

The compensation levels that Otter Tail proposed in its Opening Evidence are very generous, resulting in an average salary of $93,097 per General and Administrative staff member. This is higher than the actual average BNSF 2002 compensation for Executives, Officials, and Staff Assistants (USOA Code 100) and Professional & Administrative (USOA Code 200) combined, which produce an average of $71,856 per employee.[71] These salaries, however, are far below the $103,284 average salary that BNSF puts forth for the OTRR General and Administrative staff in its Reply evidence. BNSF's proposed General and Administrative salaries reach these heights through several factors. First, BNSF uses exorbitant CEO & Vice President compensations. Second, BNSF consistently proposes unnecessarily high labor classifications or misclassifies positions according to the USOA.

For example, BNSF Wage Form A includes three codes that could possibly cover an Administrative Assistant position, including Code 214-Secretaries; Code 212-Clerk Technician; and Code 215-General Clerk. Of these job classifications, Secretaries are relatively scarce at the actual BNSF, numbering only 64 across the entire organization compared to 545 Clerical Technicians and 541 General Clerks. Secretaries are paid the highest amount, receiving an average salary of

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70 See Otter Tail Rebuttal Workpaper Vol. 2, pp. 6052 to 6056.
71 BNSF 2002 Wage Form A. See Otter Tail Opening Workpaper Vol. 4, pp. 2881 to 2886.

in 2002, compared to for Clerical Technicians and for General Clerks. In these days of word processing, most Administrative Assistants would probably be considered Clerical Technicians, since these positions no longer involve much typing and "Staff Assistant" is one of the Clerical Technicians' described duties. However, BNSF has designated the $ 0 indexed to 1Q02) secretary salary for almost every OTRR Administrative Assistant, thus selecting the most expensive job category possible.

BNSF has also promoted a number of OTRR's clerical staff into Subprofessional ranks, so that the Administrative Assistant to the CEO, the Revenue Accounting Clerks, Disbursement Clerks and Costs and Budget Clerks are considered Sub-professionals (Code 202), thereby receiving about more in annual salary than if they were considered 212-Clerical Technicians or 215-Clerk General. The description in the Code of Federal Regulations suggests that accounting support positions should be consistent with Code 212: "Clerical occupations with duties to perform independently responsible work requiring special financial cost, accounting, or other technical knowledge."[72]

Choosing unnecessarily high labor classifications is a consistent pattern in BNSF's Reply evidence. BNSF adds to the salary for OTRR attorneys salary by applying the more expensive labor classification of Code 103-Regional and Division Officers rather than Code 201-Professionals. The USOA clearly lists attorneys under Code 201.

As mentioned previously, the elevated General and Administrative compensation in BNSF's Reply evidence in part results from the exorbitant salaries that BNSF is proposing for the OTRR

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[72] See Otter Tail Rebuttal Workpapers Vol. 2, p. 6053.

President and Vice Presidents. In its Opening Evidence, Otter Tail based the OTRR President's compensation on the 2000 salary of then WCNA President, Reilly McCarren. Mr. McCarren, a BNSF witness in this proceeding, states that the $358,590 Otter Tail included in its Opening Evidence inappropriately benchmarks his compensation because Otter Tail did not include the cost of his stock options in 2000. It is interesting that Mr. McCarren would disagree with Otter Tail in not recognizing this as an expense, since Wisconsin Central did not recognize it as an expense to its investors. Wisconsin Central also did not include stock options in its calculation of net income in its 2000 10-K, but per GAAP standards, disclosed its granting of stock options in a footnote instead. Further, other companies such as Genesee & Wyoming, Kansas City Southern, and RailAmerica have not expensed stock options over the last several years.

BNSF rejects the compensation that Otter Tail proposes for the OTRR President and instead bases the OTRR President's compensation roughly on that of KCS's CEO. To arrive at this figure, BNSF's approach is to benchmark the OTRR against other railroads. According to BNSF, RailAmerica, KCS and Genesee & Wyoming (G&W) had revenues "closest but lower" than the OTRR and therefore would be good proxies. BNSF considers KCS to be a good benchmark because, unlike RailAmerica and G&W, KCS runs a contiguous North American railroad of "comparable" size to the OTRR. BNSF, therefore selects KCS's President as an appropriate benchmark.

BNSF provides no adequate explanation why a least cost, most efficient carrier would pay its President more than that of WCNA nor any reasonable rationale why KCS is more appropriate. KCS is particularly unsuitable as a benchmark because KCS operates over twice as many route miles as would the OTRR and, when KCS's investments in the Tex Mex Railway and the Mexican carrier, TFM, are factored in, KCS has investments in approximately 6,000 North American route miles.

KCS also has invested in the Panama Canal Railway Company. For this reason, KCS is a far larger, more complex organization than the OTRR. In terms of overall responsibility, perhaps KCS's COO, Gerald Davies with $312,108 in total 2002 compensation would be more analogous to the OTRR President. Otter Tail therefore continues to use the $358,590 President's salary, indexed to 1Q02 in its Rebuttal evidence.

BNSF's approach to vice president compensation is plainly inconsistent. After claiming that KCS is the most comparable to the OTRR and that Michael Haverty's salary is a good proxy for the OTRR CEO salary, BNSF does not use KCS's vice presidents as proxies for the OTRR VPs. Rather, BNSF ignores the KCS vice president salaries, assembles another menu of potential benchmarks, and then arbitrarily selects $300,000 for executive vice presidents, and $250,000 for the vice presidents of smaller departments. Interestingly, if KCS's salaries had been used, the average vice president compensation would have been only $242,619, according to data in BNSF's workpapers.[73] BNSF provides no valid reason why the $300,000 and $250,000 are more accurate representation of the OTRR vice presidents' compensation than the amounts Otter Tail used. Otter Tail's figures of $231,580 and $192,873 ($240,475 and $200,281 when indexed to 1Q02) were based upon actual compensation at the Wisconsin Central and are the best evidence of record. If BNSF really thought that the KCS CEO salary was applicable to the OTRR, then it should have also have used the KCS vice president salaries as the basis for OTRR vice president compensation.

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[73] See BNSF Reply electronic workpaper "RR_Comparisons.xls."

Instead, this discrepancy demonstrates that BNSF is simply "cherry-picking" executive salaries to inflate G&A expenses. Because it is irrational and inconsistent, BNSF's evidence must be rejected.

It should also be noted that Otter Tail's estimate of the number of employees at the vice president level for the OTRR was, if anything, conservative. Of the railroads for which BNSF provided data, the great majority have 4 vice presidents, even among the four large Class I carriers. Carriers such as the Genesee & Wyoming, the FEC, and WCNA only have three vice presidents for their North American rail operations. Otter Tail, by contrast, has included eight vice presidents for the OTRR. The only railroad in the real world that comes close to this is KCS with six vice presidents. In its Reply evidence, BNSF also includes eight vice presidents, but then adds an additional four assistant vice presidents. These are each paid ne with compensation based upon BNSF Wage Forms A & B, Code 101, Executives and General Officers. To begin with, it is highly inconsistent to use this code. If BNSF assigns some executives to this category, it should assign all executives to this category, since for the real world BNSF, Code 101 covers all executives, from BNSF CEO downward. Second, BNSF is taking what is already an oversized headcount of executives and making it even larger. Under BNSF's proposal, this least cost most efficient carrier would have13 employees earning near or above $200,000. BNSF's overly generous executive compensation levels should be rejected.

Table III-D-27 below, compares BNSF and Otter Tail's compensation levels for those positions that both parties staff. Otter Tail continues to rely on the compensation used in its Opening Evidence for all General and Administrative personnel.

Table III-D-27

Comparison of OTRR G&A Compensation

Department/Position (1)	Otter Tail Opening (2)	BNSF Reply (3)	Difference In Compensation (4)
1. President's Office			
a. President	$372,364	$695,383	$323,019
b Administrative Assistant	$43,233	$70,459	$27,227
2. Finance and Accounting Department			
a. Vice President-Finance	$240,475	$298,021	$57,546
b. Secretary	$43,233	$69,071	$25,839
c. Vice President-Treasurer	$200,281	$248,351	$48,070
d. Cash Manager	$80,478	$77,996	($2,483)
e. Vice President-Controller	$200,281	$248,351	$48,070
f. Assistant Controller-Revenue	$80,478	$94,462	$13,984
g. Director-Taxes	$96,174	$94,462	($1,711)
h. Manager Financial Reporting	$80,478	$77,996	($2,483)
i. Staff Accountant	$78,414	$77,996	($419)
j. Revenue Accounting Clerk	$43,233	$70,459	$27,227
k. Assistant Controller-Disbursements	$80,478	$77,996	($2,483)
l. Manager Car Hire	$80,478	$77,996	($2,248)
m. Disbursement Clerks	$45,107	$70,459	$25,353
n. Payroll Manager [1/]	$80,478	$77,996	($2,483)
o. Payroll Clerks	$45,107	$70,459	$25,353
p. Costs and Budget Clerk	$45,107	$70,459	$25,353
q. Secretary	$43,233	N/A	
d. Information Technology			
a. Director	$78,414	$94,462	$16,048
b. IT Specialists	$70,837	$70,459	($379)
e. Legal Affairs			
a. General Counsel	$200,281	$248,351	$48,070
b. Staff Attorney	$78,414	$95,660	$17,246
c. Secretary/Paralegal	$70,837	$70,459	($378)
f. Human Resources Department			
a. Vice President-Human Resources	$200,281	$248,351	$48,070
b. Director-Recruitment	$96,174	$94,462	($1,711)
c. Director-Personnel	$96,174	$94,462	($1,711)
d. Director-Compensation and Benefits [1/]	$96,174	$94,462	($1,711)
e. Analyst	$70,837	$70,459	($378)
f. Claims Manager	$84,121	$77,996	($6,125)
g. Administrative Assistant	$43,233	$69,071	$25,839
7. Marketing Department			
a. Vice President - Marketing	$200,281	$298,021	$97,740
b. Marketing Analyst	$70,837	$70,459	($378)

[1/] Position added in Otter Tail Rebuttal evidence.

iii. General and Administrative Material, Supplies and Equipment

In Reply, BNSF made several changes to the unit costs that Otter Tail had specified in Opening for the OTRR's G&A Materials, Supplies and Equipment. As noted above, BNSF has proposed a unit price for desk and chair sets of $1,171 per set per year. BNSF's logic is to have the OTRR finance two sets of desks and chairs for each set it uses at a 9.76 percent cost of capital. This is clearly ludicrous, and Otter Tail continues to use an annual unit price of $480 per year which is more than adequate.

In its Opening Evidence, Otter Tail supplied its G&A staff with a pool of six Chevrolet Malibu sedans. In Reply, BNSF provides specific G&A staff members with four wheel drive Ford Explorer SUVs, totaling 11 automobiles. BNSF neither explains why this number of automobiles would be required nor why SUVs are appropriate for G&A staff. As discussed previously, Otter Tail does not believe that automobiles should be assigned to individuals since such assignments make these automobiles unavailable to others. Furthermore, as discussed above, Otter Tail finds several faults with BNSF's automobile payment calculation, including an unnecessarily high interest rate and an assumed negative salvage value, which should be positive. For these reasons, BNSF's proposed automobile fleet should be rejected.

BNSF also includes an amount of $101,776 for Safety Awards and Incentives. This expense is frivolous and inconsistent with the concept of a least cost, most efficient carrier. The OTRR would expect high safety standards from its employees without holding contests. BNSF also includes $743,306 for G&A employee travel based upon 5 percent of salary for most G&A employees, and 15 percent for marketing staff. BNSF does not explain why its amounts are appropriate or why travel expenses are related to salaries.

Otter Tail included a sum of $113,339 for G&A travel budgets in Opening Evidence. This is based upon the assumption that each employee at the level of Director and above, in addition to the Manager, Car Hire, Costs and Budgets Clerk, Staff Attorneys, Claims Manager, and Marketing Analyst would be granted travel budgets. As discussed in Otter Tail's Opening Evidence, the amount of the travel budgets are based on a survey by Runzheimer International of the average annual cost per corporate traveler. BNSF's travel estimate is unfounded and should be rejected.

iv. Other General and Administrative Expense

(a) Professional and Outside Services

In Opening, Otter Tail proposed that the OTRR outsource several G&A functions such as legal expenses, claims service, audit and tax services, and payroll expenses.[74] BNSF incorrectly claims that Otter Tail failed to support the amounts it pays for outsourcing services. Otter Tail's outsourcing costs are based on the extensive experience in the Class I, short line and regional railroad industries of Messers. Sugar and Conser. For example, Mr. Sugar, a CPA, performs tax and audit services for the South Central Florida Express and other companies and is responsible for outsourcing many of these same activities at the SCFE.

In spite of BNSF' s claim of a lack of support, it accepts Otter Tail's amounts for all but legal services and audit and tax service. Based on Mr. McCarren's experience, BNSF increases the OTRR's legal expenses from $250,000 to $1,000,000 annually and its tax and audit costs from $260,000 to $355,000 annually. With regard to legal expenses, Mr. McCarren claims that WCNA incurred outside legal expenses ranging from $821,000 to $1.8 million from 1998 through 2000.

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[74] BNSF accepts Otter Tails cost per employee for payroll expenses of $80, however, BNSF payroll outsourcing costs related to payroll expenses are greater than those proposed by Otter Tail because they would have the OTRR employ far more personnel.

As discussed previously, WCNA is a publically held company, a substantially larger carrier than the OTRR, with many more employees handling many diverse commodities in single car and multiple car shipments among hundreds of origins and destinations. Because of the filing requirements of public companies and the liability claims that result from hundreds of additional employees and small shipments, one would expect the WCNA to incur far greater legal expenses than the OTRR. In Rebuttal, Otter Tail continues to include a generous $250,000 annually for outside legal services.

With regard to tax and auditing services, BNSF provides no explanation or justification for increasing the OTRR tax and audit fees from $260,000 to $355,000. From 1988 through 1992, Mr. Sugar was Vice President-Finance of Emons Transportation Group, now Genesee & Wyoming, Inc. ("GWI"). GWI is a multimillion-dollar, NSYE listed international transportation services company. Mr. Sugar directed the treasury, accounting, tax, SEC compliance, data processing, and risk management functions of this multi-divisional organization. As Controller of PHH Corporation, Mr. Sugar directed a corporate staff of fifty in accounting policy and controls, internal and external reporting, tax compliance and planning, financial systems, and payroll. He was responsible for SEC compliance, analysis and interpretation of consolidated operating results, strategic planning, and budgeting. As stated previously, Mr. Sugar, a CPA, is responsible for preparing tax returns for the SCFE and for outsourcing its audit functions. Based on his experience, Mr. Sugar believes that the $260,000 provided for outsourcing these services is more than adequate and Otter Tail continues to use this amount in Rebuttal.

(b) Start-up and Training Costs

(i) Financing Fee

The BNSF Reply argues that the OTRR would incur an equity financing fee at four percent of the OTRR's equity investment. Otter Tail has been unable to find where this amount carries through to operating expenses in BNSF's electronic workpapers. The Board has rejected this expense in previous cases.[75] Otter Tail believes that this cost should be rejected in the current case. BNSF has not provided any compelling evidence why such an adjustment would be necessary. As the Board noted in WPL, inclusion of an equity flotation cost would require an entire reexamination of the use of railroad industry cost of capital in the DCF model.[76] This would be a highly complicated procedure, generating hypothetical costs not only for equity flotation but all costs associated with financing a stand-alone railroad. There is no guarantee that the results would be higher or lower than the railroad industry's cost of capital, nor that the results would be more predictive of what the OTRR would actually incur. Otter Tail believes that it is far more preferable to use the railroad industry's cost of capital, unadjusted by any additional hypothetical fees.

(ii) Recruiting and Training Cost

In its Opening Evidence, Otter Tail provided $7,898,630 for training and hiring costs. This was based upon detailed assumptions of training costs for T&E employees and detailed assumptions for recruiting costs for all employees. It also assumed $75 per employee for pre-hire physicals, and costs of training dispatchers, maintenance of way supervisors, maintenance of way crew members, and equipment inspectors. Otter Tail then combined the initial hiring costs and initial employee

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[75] TMPA at 162, WPL at 107.
[76] . WPL at 107.

physicals with start-up training costs (including travel and room and board) and amortized these costs as an investment in the DCF.[77]

In its Reply, BNSF included $34,632,471 for hiring and training costs. This includes a $75 pre-hire physical for each employee, a 25 percent of salary recruitment cost for all executives, training costs for each T&E employee, dispatcher, assistant manager of train and locomotive operations, and equipment inspector, and a $1,348 hiring cost for all remaining employees. By far the largest source of difference between the parties is due to BNSF's inclusion of $29,444,714 for training T&E personnel, compared to Otter Tail's T&E training cost of $4,987,824.

In general, there are two problems with BNSF's training and recruitment costs. First, BNSF attempts to use training and recruitment as an entry barrier, and second, BNSF's analysis is completely unsupported.

On page III.D-111 of the BNSF Reply narrative, BNSF argues, "Otter Tail's assumption that 60 percent of employees will be hired by word of mouth may be realistic once the railroad is established but is hardly likely to be correct for initial staffing." BNSF goes on to claim that, "Unlike most start-up railroads developed in the past 20 years, OTRR is not purchasing a line of railroad from BNSF with a pre-existing employment base. Thus the recruiting task will be considerably greater than normally faced by new railroad companies." BNSF is, in essence, saying that the OTRR will need to spend more than an incumbent railroad and more than a typical start-up railroad because it lacks an asset that these other carriers possess. The asset is a pre-existing employment base. With a pre-existing employment base, a carrier would not need to spend nearly

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[77] See Otter Tail Opening Narrative at III-D-33 and electronic workpaper "Otter Tail_Opr_Exp.123."

as much on recruiting. Thus, BNSF has created an entry barrier and is violating the concept of contestable markets that is fundamental to SAC principles.

The ICC affirmed this concept in regards to the availability of construction assets in its Nevada Power decision, stating:

> "Any restrictions in the supply of resources necessary to construct the SARR in the minimum time dictated by technological feasibility represents a barrier to entry. Thus, inclusion of the additional entry costs proposed by the defendant would increase the cost of entry above competitive levels, thereby permitting the incumbent to enjoy enlarged profits equal to the differential between the competitive cost of service and those which include the entry barrier costs."[78]

Since the Board assumed that an entrant would have the same access to construction resources as the incumbent, it is consistent to assume that the entrant would also have equal access to human capital resources as the incumbent. Therefore, the OTRR must be assumed to face the same pool of potential employees as BNSF and incur recruiting costs no higher than would BNSF.

BNSF's presumed entry barrier appears to pervade its training assumptions as well. Every T&E employee is basically presumed to have never set foot on a railroad, unlike the incumbent, BNSF, which has access to a pool of experienced as well as inexperienced applicants. Otter Tail presents a much more reasonable set of assumptions which do not posit an entry barrier, i.e., one quarter of the OTRR new hires will be railroad novices, one quarter will be experienced conductors, one quarter will be conductors retrained as engineers, and one quarter will be experienced engineers.[79]

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78 Bituminous Coal - Hiawatha, UT to Moapa, NV, 6 I.C.C.,2nd at 55.

79 In Supplemental Reply, BNSF submits new evidence to support the notion that the train crew labor force is restricted based on UP's recent experience with hiring new train crews. UP's current shortage of crews is a temporary result of the change in retirement age from 62 to 60 with 30 years experience, It is inappropriate to apply a temporary phenomenon experience by one carrier to the OTRR. See Otter Tail Rebuttal workpapers Vol. 2, pp.

The second objection to BNSF's recruitment and training analysis is that it is entirely based upon the unsupported opinions of BNSF's G&A witness. BNSF has neither provided a single workpaper nor does it point to any actual training program or recruitment statistics to support its training costs. In contrast, Otter Tail presented many pages of evidence, detailing actual training programs and recruitment practices. For example, even if one were to assume that all new OTRR T&E employees were novices, there is no reason to believe that it would cost $40,523 when Otter Tail has documented a program used by CSX that costs only $13,612 per employee. All of OTRR's assumptions were taken directly from an actual AMDG training program. Similarly, it is incorrect to assume that a headhunter would charge 25 percent of an employee's first year salary for recruitment cost when Otter Tail has presented a website listing from a recruiter that specializes in the railroad industry that charges only 10 percent of the employee's first year salary. Unlike BNSF, Otter Tail has provided proof of what is feasible.

Specific objections to BNSF's analysis are discussed below:

First, a portion of the differences in training cost between the two parties results from BNSF adding 138 more crew members to the OTRR. The larger difference is related to the training cost per each T&E employee. Otter Tail included training costs per T&E employee of $9,483 while BNSF assumed a training cost per employee of $40,523. As mentioned previously, Otter Tail believes that it is inappropriate to assume that all employees would be novices. Not only does it create an entry barrier, but it is also inconsistent with the salaries paid to the T&E employees. BNSF's T&E salaries assume that OTRR will be staffed by highly experienced engineers and conductors, such that the average employee will be earning $68,298. However, when it comes to

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6061 to 6062.

training crews, BNSF is recommending that every crew member go through 5 weeks of classroom training plus 19 weeks of on the job training. This is more training than would be necessary to train even the most "green" hire. Thus, BNSF seeks to have the OTRR suffer the worst of both worlds, i.e, it must pay the costly wages of experienced crew members and then pay for over five months of training as if each individual is totally unfamiliar with train operations.[80]

BNSF's training costs do not approximate those of training a novice railroader because 1) the employees' wages would be at the bottom of the pay scale and 2) the railroad would not have to pay for all of the training costs.

For example, Otter Tail used an orientation presentation from an AMDG training program as the basis for novice conductor training costs.[81] The presentation states that a conductor's salary starts out at around $35,000 and reaches nearly $70,000. The presentation informs applicants that, once hired by CSX for on-the-job training, all new hires will receive only $670 per week. By contrast, BNSF envisions the OTRR will pay T&E employees $1,051 per week while in training. Furthermore, the AMDG training program demonstrates that CSX does not pay anything while these candidates are in classroom training. Prior to being hired by CSX, the candidates themselves cover the $4,250 tuition and their room and board.[82] Otter Tail conservatively includes only some travel

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80 In Supplemental Reply, BNSF alleges that Otter Tail understated the time required for training train crew personnel based on an article appearing in Rail Business. Contrary to BNSF's assertion, Otter Tail's training assumptions are based on actual training programs available in the market place and relied on by Class I carriers.

81 See Otter Tail Opening Workpaper Vol. 4, pp. 2960 to 2963.

82 In Supplemental Reply, BNSF states that Otter Tail failed to include any classroom training costs for novice conductors. Otter Tail's omission of classroom training costs for novice conductors is consistent with the actual experience of CSX and the AMDG training program as supported in Otter Tail's Opening workpapers, Vol. 4, pp. 2860 to 1963. In addition, CSX's website further supports the fact that novice engineers and conductors pay for their own training where it states, "To become a locomotive engineer or conductor, complete a college freight conductor program, then seek a position at a railroad." See Otter Tail Rebuttal workpapers, Vol. 2, p. 6063.

cost and the cost of paying $670 plus fringes for 13.5 weeks of on the job and field training for novice conductors.

Experienced railroad employees, unsurprisingly, need less training. These employees would have to be qualified in the General Code of Operating Rules, the OTRR safety rules, and qualified on the specifics of the OTRR locomotive and train operations, but would need little training beyond this. A company called "Keeping Track Railroad Consulting and Training" has devised an 11-day program to train experienced engineers, and a six day program to train experienced conductors.[83] Otter Tail conservatively assumes that experienced hires will take these programs at the OTRR's expense and then will have several weeks of on-the-job familiarization. Unlike BNSF's training estimates, Otter Tail's assumed costs of training experienced personnel are based upon actual training programs.

BNSF also provides for $38,508 for training each dispatcher. In its Opening Evidence, Otter Tail provided a brochure from a railroad dispatcher training program at Tarrant County College, Texas, which indicates that the dispatcher applicants pay for their training, not the hiring railroad.[84] Once again, Otter Tail has provided evidence to support its estimates, while BNSF is working on pure supposition.

Second, as mentioned previously, BNSF assumes that the OTRR will hire all "executives" through a recruitment firm. BNSF uses the term "executive" liberally, so that anyone in management is considered "an executive." BNSF provides no support for why 25 percent of salary would be an appropriate cost for recruiting executives. Applied to the exorbitant average salary that BNSF would

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83 See Otter Tail Opening Workpaper Vol. 4, pp 2964 to 2971.
84 See Otter Tail Opening Workpaper, Vol. 4, pp. 2972-2978.

have the OTRR pay executives and managers of $103,284, the resulting cost per hire that this least cost, most efficient carrier would pay to recruit each manager or executive is $25,821. BNSF then applies this cost to 99 individuals, resulting in a recruitment cost of $2,678,583. As mentioned previously, Otter Tail sees no reason why the OTRR would pay 25 percent of salary for a recruitment firm when a firm called RailPros that specializes in placing managerial and professional candidates with positions in the railroad industry charges only 10 percent of the first year salary.[85]

The idea that the OTRR would use a recruitment firm to hire all management staff is not only unsupported but is also far fetched. It basically posits that the OTRR management will have no contacts within the industry by which to network potential hires and won't even try to find candidates through its own advertising. It also assumes that the OTRR would select the most expensive recruiting option and follow worst practices in human resources rather than best practices. According to a joint poll of HRnext and BLR.com, 55 percent of human resources managers cited "word of mouth/networking" as the best way to recruit qualified applicants. According to HRnext president, John Brady:

> "Good HR departments use a variety of approaches. But it's easy to see why hiring managers prefer this one (word of mouth/networking). When push comes to shove, and they need to fill a position in a hurry, they'll go with somebody they already know or whose credential have been vouchsafed by someone else they know and trust. Given the current economy, the cost of using other options may be another factor in leaning so heavily on networking. Talk is, after all, pretty cheap."[86]

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85 See Otter Tail Opening Workpaper, Vol. 4, pp. 2981-2984.
86 See Otter Tail Rebuttal Workpaper Vol. 2, p. 5901.

To follow a typical recruiting approach that is more reliant on networking and not exclusively dependent on recruiting is far more consistent with a least cost most efficient carrier, as well as good Human Resource practices.

In contrast to BNSF, Otter Tail based its OTRR recruiting methods on how employees are hired in the real world. As explained in its Opening Evidence, Otter Tail estimated recruiting costs based upon a survey by the employment services company, Drake Beam Morin (DBM), of individuals who recently found jobs: - 60 percent of respondents said that they landed a job through networking, 10 percent through a search firm/agency, 15 percent through some type of company advertisement, and 15 percent through another means.[87] BNSF's proposed recruitment costs should be rejected because they are unfounded and assume an entry barrier.

Third, it is inappropriate to treat training and startup costs as an expense, since it violates the "matching rule." The matching rule is an accounting principal which holds that expenses should be matched with the revenues that those expenses were used to produce. By hiring and training its employees the OTRR is making an investment in human capital. Most of these employees will generate revenue for the company for years to come, so their training and hiring should be matched against that future revenue.[88] A business's start-up costs should be amortized, and these start-up costs include expenses paid or incurred in connection with "any activity engaged in for profit and for the production of income before the day on which the active trade or business begins."[89]

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87 See Otter Tail Opening Workpaper Vol. III, pp. 2986 to 2989.

88 In Reply, BNSF assumes a 5.5 percent attrition rate for its employees. Stated differently, 94.5 percent of the OTRR's employees are expected to stay with the OTRR each year, thus the hiring and training costs for these employees will effect future revenues.

89 U.S. Master Tax Code, Section 904. See Otter Tail Rebuttal Workpapers Vol. 2, pp. 6059 to 6060.

Fourth, for "rank and file" employees BNSF uses an estimated hiring cost of $1,384 which appears to be based upon the hiring cost that Otter Tail proposed in its Opening Evidence. BNSF's application of Otter Tail's estimate is unexplained. However, BNSF apparently intended to apply a hiring cost estimate to all employees who are not subject to the 25 percent first year salary cost of hiring an executive. Because the maintenance-of-way department is handled separately, BNSF's training/recruitment costs should be applied to 933 employees.[90] Of these, 99 are considered executives. Therefore, by BNSF's logic, the remaining "rank and file" employees to which the $1,384 hiring cost should apply is only 834 employees. Instead, BNSF multiplied the $1,384 charge times 933 employees, and in doing so, it double counted recruitment costs by $137,016. BNSF also double-counts training for the supervisors of maintenance operations by including training costs in its maintenance of way calculations and then more training costs in its operating expense spreadsheet, thus adding an extra $101,515 to the OTRR's costs.

Fifth, as part of the OTRR training and hiring cost, BNSF includes $100 per employee for testing, apparently because it was standard practice at the WCNA. It is highly dubious that the OTRR would require employee testing to be feasible. Train crews would be tested as part of their training. For other employees, testing is just one of many options for evaluating new hires, and whatever would be determined through testing could just as easily be found out through recruiting interviews. Because this was done at the Wisconsin Central does not mean that it would have to be part of the OTRR hiring process.

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[90] 1,430 total employees less 497 MOWemployees.

For the above reasons, BNSF's training and recruiting expenses are factually flawed and must be rejected. Otter Tail continues to rely on its training and recruiting cost from Opening in its Rebuttal Evidence.

4. MAINTENANCE-OF-WAY COSTS

In Opening, Otter Tail developed the annual normalized maintenance-of-way costs for the OTRR based on the engineering specifications, operating plan, and traffic volumes contained in Otter Tail's Opening evidence. As stated in Opening, the OTRR will be maintained to Federal Railroad Administration ("FRA") Class 4 track safety standards. The maintenance-of-way ("MOW") costs were separated between "spot" maintenance and program maintenance (material replacement). In Opening, Otter Tail estimated that the total annual normalized MOW costs for the OTRR equaled $85.5 million with $18.7 million, or 21.9 percent, representing spot MOW costs.[91] In Reply, BNSF also developed MOW costs for BNSF's version of the OTRR. However, rather than following Otter Tail's approach of using an economical, efficient MOW work force to address day-to-day problems and contracting out larger tasks, like programmed replacement of ties and rail, BNSF developed the OTRR's MOW costs by providing nearly all the personnel, equipment and materials to do both the day-to-day work and the program work. BNSF developed total annual costs of $154.1 million and assigned $71.7 million, or 46.5 percent, to spot maintenance.[92] Otter Tail will show these figures to be inflated and out of line.

Table III-D-28 below compares the MOW costs in Otter Tail's Opening Evidence to those in BNSF's Reply Evidence.

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91 Otter Tail's MOW costs were summarized in Otter Tail Opening Workpaper Vol. 4, pp. 3526 to 3309 and Opening electronic workpaper "OTRR_MOW.123".

92 In Supplemental Reply, because of its elimination of rerouted non-coal traffic, BNSF revised its maintenance-of-way costs to equal $138.2 million, of which $67.1 million or 48.6 percent, is assigned to spot maintenance.

Table III-D-28

Comparison of OTRR Maintenance-of-Way Costs –Otter Tail Opening vs. BNSF Reply

Item (1)	Amount (Millions) Otter Tail Opening [1] (2)	BNSF Reply [2] (3)	Difference [3] (4)
1. Personnel, Materials and Equipment	$19.8	84.7	$64.9
2. Contract Work	48.5	12.7	(35.8)
3. Normalized Maintenance	31.5	52.0	20.5
4. Total M/W Costs - 2021	99.8	NA	NA
5. Total M/W Costs - 2002	85.5	154.1	68.6
6. Operating Expense/Spot Maintenance Costs - 2002	18.7	71.7	53.0
7. Operating Expense/Spot Maintenance Percentage	21.9%	46.5%	24.6%

1 Otter Tail Opening electronic file "OTRR_MOW.123".
2 BNSF electronic file "III-D-4 Maintenance-of-way_Errata.xls."
3 Column (3) - Column (2).

Otter Tail's Rebuttal evidence related to MOW costs adds a section to the Board's format to summarize the fallacy in BNSF's approach to MOW costs for the OTRR. Subsequently, Otter Tail's Rebuttal addresses MOW operating and capital expense and other MOW expense.

a. Critique of BNSF Approach

BNSF claims Otter Tail's "MOW evidence is seriously flawed because it fails to identify all of the activities and costs associated with the maintenance of a high tonnage railroad, and particularly those expenses that are typically characterized as operating expenses." BNSF Reply at III-D-120. The basis of BNSF's contention, apparently, is that the track structure of OTRR will be subject to "tremendous pressures" from continuously cycling unit trains, thus "requiring a far more extensive and sophisticated maintenance program than that proposed by Otter Tail." BNSF Reply at III-D-121.

Contrary to BNSF's contentions, OTRR's maintenance program is both efficient, *and* workable

in the real world because it was based on real world experience. In the early years of Mr. McDonald's career, i.e., 1960 to 1975, he was a Roadmaster, Assistant Division Engineer, Division Engineer of Track, and Division Engineer. All of the positions involved supervising and working directly with field forces, both on day-to-day issues, as well as on a program basis. Mr. McDonald relied on this extensive experience and his experience as Vice President – Engineering, and Vice President – Chief Engineer of C&NW and WRPI, respectively, to develop the OTRR maintenance plan.

BNSF's comment that OTRR's track structure will be subject to "tremendous pressures," is not enlightening. Neither is BNSF's comment, on page III-D-121, noting "...extraordinary and unplanned repairs that inevitably arise when the rail infrastructure is subjected to the continuous pounding of high tonnage, high speed freight trains and the ravages of excessive heat, wind, rain, snow, ice, and other elements of nature." All main tracks in the country that carry unit and other heavy-tonnage trains are subject to the same forces. OTRR has anticipated and planned for this in its design and construction. Proper design and construction of the railroad structure can save maintenance dollars in future years. They go hand in hand. When quality in the construction process is sacrificed for expediency, the opposite generally occurs. BN learned this the hard way after it completed construction of the Orin Line between Belle Ayr and Shawnee Junction in 1979 (later known as the Joint Line).[93]

When WRPI gained access to the Joint Line in 1984, it encountered with a railroad saddled with numerous 10 mph slow orders. WRPI trains would arrive at Shawnee Junction from South Morrill, NE, a distance of 110 miles, in less than two and a half hours. Then it would take an average of four

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[93] BN constructed the Orin Line in three (3) sections. Belle Ayr to Cordero was completed in 1976, Cordero to Reno was completed in 1977 and Reno to Shawnee Junction was completed in 1979.

more hours to travel the 33 miles to reach its staging/relay yard at Bill on the Joint Line. Some of this was due to traffic congestion, but the primary reason was attributed to the slow orders. The stated reason for these restrictions was broken or defective rails, but this was merely the symptom of the real problems. First, BN had failed to properly construct the sub-grade. Second, BN had failed to use quality materials and techniques to layer and compact the sub-ballast. And third, BN had laid continuous welded rail, but failed to butt-weld the jointed ends in the field.

As a result of its weak subgrade and non-performing subballast, rail-end joints started to deflect under traffic. The rail-ends soon became battered, which led to an irregular crosslevel condition in the track. Very quickly, bolt-hole cracks and head/web defects developed in the rail. Angle bars broke under the "tremendous pressures" of the unit coal trains. BN maintenance crews, numerous as they were, compounded the problem by cutting in short rails to replace the defects, and created more joints. Even the ties were taking more than their share of the pounding, and were deteriorating quickly. BN had a major maintenance problem, and both WRPI and BN operations suffered as a consequence. BN was totally engaged in a self-created problem that should never have been there in the first place. Consequently, it required excessive maintenance forces just to keep the railroad in operation. It was too late to correct the under-designed subgrade. It was too late to correct an inadequate subballast layer. The only solution was to start from the top. The rail had to be replaced before its time. The ties also had to be replaced before their time. An inordinate amount of ballasting and surfacing finally restored stability to the track structure and the subgrade. All of this was very expensive, and would not have been necessary had BN built the line correctly in the first place. Otter Tail has learned from BNSF's dismal experience and applied its knowledge in its construction of the OTRR.

With such disastrous results in attempting to construct the Orin Line in the modern era, one can only speculate as to what standards BNSF and its predecessor railroads used over 100 years ago while constructing other Otter Tail lines.

WRPI, on the other hand, was constructed quite differently. There were no slow orders on WRPI. The subgrade was properly constructed and compacted. It had 6 inches of granular, interlocked, subballast, layered and fully compacted to shield and protect the subgrade. It had 12 inches of quality ballast tamped under the ties. The quarter-mile rail strings were all field butt-welded, including factory-built insulated joint plugs and turnout rails. There were no rail jointed ends to maintain, because there were no joints. The same specifications or greater were used in the construction of the OTRR.[94]

The WRPI line, which was subject to the same "tremendous pressures" and "ravages" of nature that the BN-maintained Joint Line failed to endure, did not require excessive and redundant maintenance forces because the faulty construction that wreaked havoc on BN did not exist on WRPI. A basic maintenance force was all that was required to handle the day-to-day problems that occurred on this "real-world" railroad that carried even more annual volume than OTRR, and exclusively in unit coal train shipments. WRPI was not deluged with broken rails and surface spots, whether on the main line, including crossings and turnouts, or in its staging/relay yards, for the reasons stated above.

OTRR will be built like WRPI. OTRR's maintenance forces are patterned after WRPI's maintenance plan. The only difference is that, rather than using company forces for its program work, OTRR will contract all work that can be scheduled and accomplished in a practical, efficient

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[94] For example, the OTRR is constructed with 8 inches of granular subballast and 12 inches of ballast. See Section III-F.

and economic manner. This means that the on-line forces can concentrate on making the prescribed inspections and effecting repairs that are necessary in the day-to-day operation, such as spot surfacing, repairing crossings, correcting gauge, adjusting switches, changing defective rails, switch grinding and frog welding, field butt-welding, correcting drainage problems, replacing broken ties, repairing insulated joints and clearing snow. They will be fully equipped to handle these and other miscellaneous problems.

BNSF states, on page III-D-121 of its Reply Evidence: "..extraordinary and unplanned repairs [that] inevitably arise when rail infrastructure is subjected to the continuous pounding of high tonnage, high speed freight trains and the ravages of excessive heat, wind, rain, snow, ice, and other elements of nature." However, the weather extremes are more severe in other areas of the country such as upstate New York, the Upper Peninsula of Michigan, and northern Ohio with its lake effects where average annual precipitation (including snowfall), is significantly higher than in the region that the OTRR operates. In Mr. McDonald's experience, the seasonal weather fluctuations in weather in those areas had considerably greater effect on the track structure. OTRR does realize that inclement weather can effect its operations and has planned accordingly. Otter Tail's maintenance plan for the OTRR has approached the subject correctly. Essentially, OTRR would have its basic forces complemented with scheduled contract forces when weather-related conditions become extreme.

BNSF's Reply suggests ignorance of the efficiencies that can be realized with a basic maintenance force working with contracted program forces. BNSF's lack of experience causes it to dismiss Otter Tail's plan as unworkable in the real world. However, use of contractors for program maintenance is a "real world" solution for program maintenance. As reported in the

September 2003 issue of *Progressive Railroading*, Rail America, in order to reduce its costs, uses contractors to perform 95 percent of all of its capital maintenance work.[95] Rail America found that by using contractors "[n]ow, we pay only for work completed and there's competition for our work so we get great unit prices."[96]

BNSF, of course, is restricted by union agreements, whereas OTRR, on the other hand, has no such restrictions. BNSF finds Mr. McDonald's concept unworkable in the real world. In BNSF's real world, each employee is restricted to a specific area or a specific function. For that reason alone, BNSF feels the necessity to transfer this restriction to the OTRR, resulting in the unrealistic need for excessive employees. On BNSF, separate rosters exist for each craft in the maintenance-of-way department, and they cannot be combined or mixed together. Without question, all crafts play an important role in maintaining the railroad properly on a day-to-day basis, and OTRR has recognized this while organizing its basic forces. BNSF's criticism is unfounded for reasons previously stated. BNSF cannot accept an OTRR organized with basic company forces, supplemented with contract forces.

Each of OTRR's maintenance personnel has been specifically assigned, and has specific duties. On the other hand, OTRR has not restricted any of its maintenance personnel from assisting others, even though it may involve temporarily stepping out from its assigned craft. C&S Maintainers are required to make tests, be technically qualified to do so, and make necessary corrections. Track Inspectors are qualified to detect irregularities in the track structure that could lead to problems or fail to meet FRA standards. Qualified class A equipment operators that are

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95 See Otter Tail Rebuttal Workpaper Vol. 2, p. 6077.
96 Id.

capable of operating automatic tamper/liners, ballast regulators, snow plows, backhoes, and burro-cranes are also essential to the success of maintaining the railroad on a day-to-day basis.

Another important craft is the Welder, specifically assigned the duties of building up frog points, grinding switches, matching rail-end "plugs" necessitated by service failures, and installing field welds to remove temporary joints in the track. The craft that handles the "heavy" work, the Trackman, generally assists the more technical crafts in carrying out their duties on OTRR. For BNSF, this would not be possible, for fear of being "time-slipped."

The more experienced Trackmen on OTRR, designated as Class B Operators, are assigned duties as truck driver, boom-truck operator, welder helper, and operators of small power tools, such as rail saws and drills. These forces, even though they may be qualified, could not operate a machine listed in the class A category for BNSF. On OTRR, should the need present itself, they could. On OTRR, in fact, anyone in the 14-member crew can assist a member of another craft, assuming he is qualified, and it is convenient to do so. Again, this would not be the case with BNSF's version of OTRR.

OTRR's maintenance forces reflect what has happened over the last 20-30 years with regard to railroad train operations. For example, all Class I railroads in the past were required to use at least five people to operate a train, even after the inception of diesel powered locomotives. This included an engineer, fireman, conductor, head brakeman, and rear brakeman. Each had a specifically assigned task. Today, trains, even on Class I's, operate with two people. Either can perform any task required to operate the train. OTRR has applied this logic to its train crews. And as the least cost, most efficient carrier, this same logic was followed in quantifying and assigning its

maintenance forces. OTRR's qualified maintenance forces are geared for the highest level of productivity and efficiency and are assigned accordingly.

BNSF witnesses have criticized OTRR's basic MOW forces because they are not organized "departmentally." This is ridiculous. OTRR's basic maintenance forces are designed to carry out all day-to-day maintenance functions, including making the necessary inspections and repairs. The "department" is the Maintenance of Way Department. In fact, BNSF, while trying desperately to distinguish its plan from that of OTTR's, and label it as "unworkable in the real world", has come up with almost the same plan, with, of course, a greater basic force, and one not supplemented with contractors.

OTRR's plan is workable and is staffed appropriately. For example, a typical "road" gang on OTRR has been assigned a territory of approximately 100 miles, with the headquarters placed near its center. There are 14 such gangs headquartered over the OTRR's 1284 route-mile system. The length of the territory was determined with consideration given to several factors; namely, the facilities involved; i.e., yards, bridges, sidings, signal system, crossings, etc.; the level of traffic; and the geographic nature of the territory; i.e., curves, grades, and other potential problems.

With each territory established, the make-up of each 14- member force was determined, and included one foreman, one track inspector, two welders, two communication and signal ("C&S") maintainers, three Class A equipment operators, two trackmen classified as class B equipment operators, and three other trackmen. Based on Mr. McDonald's experience, the size of this basic force, contrary to BNSF's false assertions, is typical in the industry for a railroad similar to the OTRR.

As an example, OTTR has one track inspector to cover approximately 100 miles. He will cover half his designated territory in a radio-equipped hi-rail vehicle, on alternate days, as required by regulation for the class of track. He is in constant contact with other gang members when assistance is needed to correct a problem. The inspector also makes a daily report of his observations, which is maintained in the foreman's office for review by the Roadmaster, and, perodically, an FRA inspector. His reports are the basis of the work scheduled by the foreman for the other crew members. The size of the inspector's assigned territory is typical in the industry, however, BNSF would needlessly assign two inspectors.

The two C&S maintainers generally work independently, conducting periodic tests as mandated by FRA, and making any minor repairs or adjustments to the systems. Two C&S Supervisors are located at Donkey Creek and Glendive to assist and monitor testing. Contrary to BNSF's assertions, OTRR did base its basic C&S forces on its AAR units, and in consideration of travel time involved. Again, BNSF fails to grasp OTRR's stated plan; i.e., to contract its major work.

BNSF also fails to understand how much quality work a small force can accomplish, particularly when fully equipped. For example, OTRR has assigned three Class-A equipment operators to each gang, capable of operating heavy-duty machines such as automatic tamper/liners and ballast regulators. With the assistance of the Foreman and two trackmen, this small force can perform out-of-face smoothing, averaging at least a mile per day, or they can cover several miles per day, spot-surfacing. Tonnage levels on OTRR require this to be done each year, over its mainlines, in addition to the periodic regular out-of-face ballast programs conducted by the outside contractors. OTRR has assigned basic forces with the proper equipment to accomplish this.

On other occasions these same operators can operate other equipment that is available, such as a backhoe, for repairing road crossings, installing miscellaneous switch and crossties, and correcting drainage problems. The class B operators generally operate the boom trucks, generators, and small power tools. With this equipment and a small force, including a welder, OTRR is well positioned to repair any broken rails that may occur, be they a service failure or those found by a detector car.

A number of other tasks are performed, and preventative measures taken by the basic "spot' gang forces to maintain the designated track speeds, and extend the life of materials. These include, but are not limited to, adjusting switches, adjusting welded rail and anchor patterns, changing curve-worn rail, correcting drainage problems and, correcting surface conditions.

In addition to the equipment available to the basic maintenance gangs on a daily basis, OTRR has purchased two Model-40 Burro Cranes, primarily stationed at Donkey Creek and Glendive yards, which are periodically moved over the southern and northern territories as directed by management. They are used to distribute, load or unload rail and other items, clean up scrap, and perform ditching projects where required. This equipment is available for approximately four months each year to each Roadmaster.

OTRR has prepared itself in the event of a mainline derailment where the track at the site is completely destroyed and has to be replaced. After the contractor has removed the derailed freight cars and reestablished the roadbed, OTRR basic forces will place pre-fabricated track panels, using one of the Model-40 Burro Cranes, then dump ballast, raise, surface, line, and dress the track. The following day, the OTRR basic forces will replace the "stick" rail in the panels with welded rail, re-surface the track, install the field welds and, restore the signal system. This

is all accomplished with OTRR's basic forces, who are equipped to handle such emergencies. Anyone in the 14 member crew can assist another craft in this, or any other situation when necessary, and when it is convenient to do so, regardless of craft. This would not be the case with BNSF's version of OTRR, and is one of the reasons why they have excessive personnel.

In Reply, BNSF over dramatizes the consequences of "tremendous pressures." The focus of its concern appears to be in the area of defective rails, and changing them out on a timely basis. Prior to the advent of continuous welded rail, the preponderance of rail defects on railroads occurred at bolted joints, identified as (1) head/web separations and (2) bolt-hole cracks. With CWR, of course, these types of defects could virtually be eliminated assuming field butt-welding was instituted. Again, BNSF's concern could be related to BN's failure to, among other things, field butt-weld the rail joints on the Joint Line at the time of its original construction.[97] OTRR will lay continuous welded rail in all its trackage, including its yards, and will field butt-weld all rail joints.

Internal defects, however, are a concern even with CWR. These flaws in the rail can start to occur as early as the manufacturing process itself. Rail producers of new rail will, in most cases, guarantee their product against internal defects for at least a year of operation after it is initially laid and tested. After that, internal defects that do develop over time, are easily detected in their early stages by regular and periodic use of an ultrasonic test-car, and then those rail sections are promptly removed from track. As a result, rail service failures in CWR are more of a rarity than a daily

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[97] BNSF discusses its numerous track failures on the Joint Line during 2002 and the peak period. It appears that BNSF is still suffering from its original construction errors combined with the 350 million net tons per year moving over the Joint Line. The OTRR would not suffer from either of these problems as it is constructed based on the WRPI specifications and handles only 180.4 million tons in 2002 over these same lines.

occurrence as suggested by BNSF.[98] In any case, OTRR is equipped to handle any rail service failures and certainly will not need an army of forces to effect any repairs that may be necessary.

BNSF incorrectly assumes that only work done by OTRR's basic maintenance gangs would be chargeable to operating expense. A number of functions performed by contract forces would also be chargeable to operating expense as opposed to capital expense. However, as previously noted Otter Tail agrees that all minor repairs that are necessary on a day-to-day operation can better be accomplished with basic forces.

It is noteworthy that, in total, the annual maintenance-of-way cost BNSF estimated is based on BNSF's experience in working on the lines similar to OTRR. In fact, BNSF states, Mr. Albin identified the projects and problems "based on his experience as head of maintenance on the lines being replicated."[99] This is revealing indeed, since there are considerable differences in the needs of maintaining the BNSF's line segments compared to those of the OTRR. Had BNSF correctly assumed the needs based on OTRR's construction and operation and not BNSF's experience in maintaining its similar line segments, our results would also likely have been somewhat similar.

The major differences in Otter Tail's and BNSF's MOW cost are related to four factors. First, BNSF has all but eliminated the use of contract forces. Second, BNSF relies primarily on its experience in maintaining the lines replicated by the OTRR to develop its maintenance plan for OTRR. Moreover, BNSF fails to recognize that the OTRR is built to very modern specifications for a heavy haul railroad, especially with regard to the roadbed, sub-ballast, ballast, rail, etc. By contrast, with the exception of the line between Converse and Donkey Creek, the BNSF main lines

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98 As a point of reference, in Mr. McDonald's experience on WRPI, there were only three (3) service failures in six (6) years between 1985 and 1991, or an average of only 1 every 2 years. This is what one would expect for a rail line properly designed, constructed and maintained.

99 BNSF Reply at p. III-D-145.

which comprise the OTRR were originally constructed over 100 years ago and although they have been upgraded over time, they are not comparable to the newly built OTRR.

By assuming BNSF's experience in maintaining its lines, rather than assuming with accuracy the needs of a railroad operating at density levels described above and without restrictive labor agreements, BNSF has grossly overestimated the costs required to maintain the OTRR.

Third, the portion of total maintenance of way expenditures that BNSF determines to be operating expense (i.e., spot maintenance) equals 46.5 percent for the OTRR. This amount is vastly greater than the percent spot determined by Otter Tail of 21.9 percent and BNSF's actual percent spot as calculated from its 2002 R-1 Annual Report of nt.[100]

Finally, BNSF determines its maintenance cost for the OTRR based on the annual average gross ton-miles moved over the system for the twenty-year DCF period. Because the OTRR carries increasing volumes throughout the life of the DCF model, BNSF's methodology greatly overstates the maintenance of way operating costs in the earlier years of the DCF model when the gross ton-miles moving over the system are less than the average for the entire period.

In contrast, Otter Tail calculates the maintenance of way cost for the OTRR based on the 2021 peak year tons, and then reduces the resulting expense to the 2002 base year by the ratio of tons moving in the base year to those moving in the peak year. The model then increases the maintenance of way expense each year throughout the life of the model by the increase in volume moving each year. Otter Tail's methodology of matching base year expenses to base year volume, then increasing the expense by the change in volumes moving each year is consistent with the treatment of all other operating expenses by the DCF model.

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[100] See Section III-D-4-c, infra.

The OTRR is a relatively small railroad, about the size of a Division territory organized on a major railroad. Mr. McDonald was a Division Engineer on the New York Central/Penn Central, as well as CNW on four separate divisions between 1965 and 1975. The average size of each of the divisions was approximately 1,200 route miles. These divisions, which experience weather every bit as severe as those lines comprising the OTRR, operated unit coal, unit ore, unit grain, manifest freight, and intermodal trains, in addition to handling way freights and, in some cases, passenger trains, all at varying speeds. These were complex operations. And yet, even before the computer age, the size of Mr. McDonald's engineering staffs would be dwarfed by the staff BNSF proposes for the OTRR, which carries primarily one commodity, in unit-trains operating at the same speed, in a non-union environment.

BNSF does not even consider the possibility of combining functions that might require only an hour, on average, each day. Instead, BNSF goes to great lengths to support its position that each function requires a separate department or separate employee and, in some cases, several separate employees. Redundancy is the watchword of BNSF's critique, as BNSF again relies upon its own experience in maintaining its line segments, and projects its inefficiencies onto the OTRR's maintenance of line segments. Thus, BNSF wrongly advances a number of reasons why Otter Tail's MOW force is too small. In the following paragraphs Otter Tail shows that BNSF is incorrect.

First, BNSF suggests that the OTRR's size, geometry and tonnage handled require it to follow the kind of Class I railroad MOW program BNSF uses or size and staff the OTRR to either the Montana Rail Link ("MRL") or the Florida East Coast ("FEC") – two regionals comparable in size but significantly different in other respects. Comparison of the MRL to the OTRR from a MOW staffing perspective is an exercise in futility because the MRL is a spinoff railroad with outdated

track, the rail weight is much lighter than the rail specifications of the OTRR, and further, is mainly composed of jointed rail and poor tie and surface conditions. All of this quite naturally, requires considerably greater MOW forces for day-to-day tasks and frequent emergencies that occur in that environment.

The comparison of the OTRR to the FEC is also pointless because the traffic mix is entirely different. The FEC, besides carrying significant amounts of time-sensitive traffic, also operates commuter services at various locations along the railroad.

There may be legitimate parameters by which railroads are categorized for some MOW staffing purposes, but such parameters should not deter an enterprise from reducing costs wherever possible. Rather, BNSF has blindly forged ahead, trying to convince the Board that OTRR needs what BNSF or some completely different type of regional railroad has needed. In effect, BNSF has tried to impose inappropriate constraints that do not exist on OTRR.

b. Operating Expense – Spot Maintenance

This section compares the annual operating maintenance-of-way costs developed in Otter Tail's Opening Evidence and those BNSF developed in its Reply Evidence and the portion of these expenses that are related to day-to-day maintenance of the OTRR, or spot maintenance. These issues are discussed below under the following topics:

i. Personnel

ii. Equipment

iii. Materials

iv. Contract Work

v. Spot percentage

i. Personnel

In its Opening Evidence, Otter Tail included 17 MOW personnel at the OTRR headquarters and 204 field personnel. Otter Tail's staffing was based on contracting out much of the maintenance requirements of the OTRR, something that an efficient railroad, unencumbered with labor union work rules, would do.

In Reply, BNSF included a total of 497 persons, 276 more than Otter Tail included.[101] The primary reason for this difference is the fact that Otter Tail's version of the OTRR contracts out for many services, which an efficient carrier would do, while BNSF's version is patterned after BNSF, which employs nearly all the forces required for both spot and program maintenance. In this regard, these workers, employed for specific descriptive tasks by BNSF, are virtually useless approximately 50 percent of the year due to the "ravages of excessive heat, wind, rain, snow, ice, and other elements of nature" in that area. This means finding "make work" projects for these employees, i.e., a project that is desirable, but not really needed. BNSF must pay these employees salaries, while OTRR can realize the same production with its contracted forces in the scheduled six months of good weather, with no unnecessary additional expenditures incurred for the remaining six months of the year. BNSF's maintenance plan excludes any consideration for efficiencies or economies. For example, BNSF includes 224 personnel for the program gangs[102] while the OTRR contracts out for program maintenance. In addition, BNSF overstates the number of required personnel in the general office and the other departments simply because it patterns the OTRR's MOW department after its own MOW department. As discussed in the previous section, BNSF's maintenance forces in the PRB

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[101] In Supplemental Reply, because of its elimination of rerouted non-coal traffic, BNSF reduced the number of maintenance-of-wayfield personnel (i.e., non-management)by 24 people. See BNSF Supplemental Reply at III.D-25 to III.D-28.

[102] BNSF Reply electronic workpaper "III D 4 Maintenance of way_Errata.xls"

area had to be even greater than normal due to all the maintenance problems that BNSF has encountered due to shortcuts and design flaws in its construction of the Joint Line.

Furthermore, BNSF has given no consideration to the consolidation of tasks among personnel, rather it sets up the OTRR's maintenance force as if it were a union force with each person able to perform only certain functions and not others. This type of job specialization, in and of itself, causes BNSF's personnel estimates to be excessive.

As for the number of main office MOW personnel required by OTRR, BNSF is naive (or disingenuous) to claim it takes seven separate departments, each staffed with a number of individuals, all with separate titles, each to handle his own separate function in order to operate efficiently.

Otter Tail agrees, however, with BNSF's assessment of duties and functions required by OTRR's MOW Department. Where Otter Tail and BNSF differ, of course, is in the magnitude of those duties and functions. The OTRR is not a complex railroad -- it is not a system comparable in size to BNSF. It is an efficient carrier and combines functions wherever possible, particularly with regard to its labor force. BNSF fails to comprehend this concept as it assigns a specific person to each specific duty whether or not that duty requires a full-time person. The OTRR does not need a staff of 36 people (20 office personnel people and 16 supervisory people) just to handle environmental engineering, manage work equipment, make estimates of track designs, supervise welding, and develop track programs. These functions are all necessary, but on a railroad the size of OTRR, fewer people can easily manage the work involved, along with a number of other functions, and OTRR has planned accordingly.

In a further effort to justify its maintenance of way staffing needs for the OTRR, BNSF claims that the OTRR is understaffed because Otter Tail has failed to consider the impacts of random failures. There are two fundamental flaws in BNSF's argument. First, BNSF fails to take into account the fact that OTRR will be a brand new, state of the art railroad. BNSF cites numerous failures that they have to account for because their railroad is outdated, but OTRR simply won't have the amount of problems to address because, as previously discussed, the OTRR will be built to a superior design standard. Second, BNSF greatly exaggerates the impact of the random failures that do occur. They offer no concrete evidence that any of these failures had an actual impact on train operations, and make no effort to provide quantification of the length of any delays that may have been actually experienced or how they may require additional maintenance personnel.

BNSF cites 2,840 random failures that occurred in 2002 on the line segments replicated by the OTRR, with a claimed average duration of approximately 2.7 hours per outage.[103] Further, BNSF implies that each of these failures had a direct impact on the operation of their trains. For example, BNSF claims that "when a signal indication appears on the dispatcher's board, for safety reasons a train must stop and wait for clearance to proceed."[104] They also note that in November of 2002, the five subdivisions averaged 8 outages per day, with an average of 2.8 hours per outage. Thus, if one accepts the BNSF's premise that these random failures require the train to "stop and wait for clearance to proceed," its trains were "stopped" 22.4 hours per day in November of 2002.

In an effort to determine whether these random failures actually impacted operation to the extent suggested, Otter Tail reviewed BNSF's Random Failures[105] file to determine whether any of the

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103 BNSF Reply at III.D-125.
104 Id.
105 BNSF Reply electronic workpaper "Random Failures 2002.xls".

reported failures were of a nature that would in fact require trains to "stop" and wait for clearance. This review confirmed that the impact of these failures has been grossly overstated and that there is no need for any additional staffing beyond the MOW staffing in Otter Tail's Opening Evidence.

Otter Tail's review focused on the failures reported in BNSF's Random Failures file for the Communication & Signal Department on the Forsyth, Orin, Big Horn, Dickinson, and Jamestown Subdivisions during the November 2002 period cited in BNSF's Reply at III-D-125. BNSF's Random Failures file is essentially what is known as a trouble failure log. Each line item on the log is the product of a trouble call received by a dispatcher from the field. The log reflects the time the call is logged, particulars gathered from the reporting person, and identification of the appropriate craft to be contacted to examine the reported event. The log also reflects: the actions taken to address the reported event, if any; the time the failure was cleared (either by repair or by determination that there was no need for repair); and the duration of the time between the opening of the item and the closing of the log. The log, however, does not include any information relating to train delay hours, nor does it convey the actual period of time that a train or trains were delayed due to any item. Rather, the random failures file merely gives an indication of what types of failures occurred, where they occurred, what method was used to clear the failure, and the duration of the fault as an open item. Therefore this data is not relevant to the actual scheduling delays that may have been incurred during the period, and can not be used to calculate manpower hours needed for C&S or maintenance of way functions.

Otter Tail's review of BNSF's random failures file for November 2002 reflects that, with the exception of a few isolated failures it is impossible to reach the Railroad's conclusions that the trains operating in any of the subdivisions needed to "stop and wait for clearance to proceed" as a result

of the cited random failures.

As a general rule of operations within the rail industry, a failed detector or suspect alarm means that the train has to operate at some lower speed (such as 30 mph) until it clears the next detector free of an alarm after being checked by a crew member or car department personnel. It does not require, as BNSF suggests, that all trains must "stop and wait for clearance to proceed." There is no basis on this record to assume that train operations were (or would be) shut down for an extended period, as implied by BNSF, because of a single detector.

There are other instances of "delays" in BNSF's random failures file for November 2002 that are similarly unlikely to have had any credible impact on train operations. For example:

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106 Otter Tail Rebuttal Workpapers Vol. 2 at 6102.

REDACTED

Other incidents include additional detector alarms, shorted track, dark signals, misadjusted switch machines, gapped points, failed rectifiers, false activations, etc. Many of the reported failures were product of obsolete equipment, poor maintenance, and inspection procedures and operational errors. Further, many of the events identified are part of the normal course of operating a signaled railroad and have been built into the resource allocation that is reflected in the annual operating costs resulting from the OTRR operating plan. Accordingly, BNSF's reliance on the random failures file as a means to require additional staff for MOW activities is misplaced. There simply is no basis to conclude from the BNSF's evidence that these random failures have a quantifiable impact on the OTRR's operations. Accordingly, the Board should not rely on this evidence as a means to require additional MOW staff.

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These are all common problems on any signaled railroad or railroad with active grade crossing protection devices. These failures, and the labor and manpower to not only repair but to perform the FRA mandated inspections, have been incorporated into OTRR's maintenance of way planning. In sum, there is not basis to conclude, as BNSF suggests, that the occurrences per day in the month of November 2002 caused the type of disruption of train operations that they imply only to inflate the OTRR's maintenance of way staffing needs.

Otter Tail has reviewed BNSF's personnel requirements and compared them to those presented in its Opening Evidence vis a vis the needs of the OTRR. Based on this review, Otter Tail continues to use the same staffing as used in its Opening Evidence.

(a) Supervision and Office Staff

Not surprisingly, BNSF opens its MOW discussion with its standard demand for more supervision. BNSF assumes that one foreman and thirteen maintenance workers could not possibly understand or carry out their maintenance duties without constant supervision, and therefore would need far more "managers" than those provided by Otter Tail. Consequently, BNSF assumes that the OTRR needs 16 supervisors, plus another 20 office personnel to supervise and manage 413 maintenance workers and their activities.

One of the precepts upon which OTRR's plan was designed is that the employees are empowered to carry out assigned responsibilities with a minimum of supervision. Emphasis is placed on doing the work properly the first time, rather than redoing a mistake. Mr. McDonald's experience on WRPI has shown that the proven approach to high level performance is to make sure that those charged with executing the work know what is required. Abundant evidence exists that "empowered" employees who are appreciated and fairly compensated are content – even eager – to

come to work every day and will absent themselves, with permission, only on rare occasions.

BNSF has also misstated Otter Tail's division of supervisory responsibilities. Much of the supervisory staff's inspection related work will drive the work of the MOW gangs under their supervision. One of the primary responsibilities of field supervisors is to monitor all FRA mandated inspections. They are also responsible for periodic inspections of all other facilities within their assigned territories, for planning the work on a daily basis, for directing the work in an efficient manner with emphasis on safety, and for coordinating with internal departments, as well as with outside agencies.

BNSF's 16 member in-the-field supervisory force is simply unwarranted. In Mr. McDonald's experience as the Division Superintendent of the St. Paul Division of the C&NW, which is approximately the same size as the OTRR, there were less than BNSF suggests for the OTRR. Further, BNSF has not demonstrated that the supervisory personnel Otter Tail has provided cannot cover its territory or its assignments. Rather, BNSF merely suggests that it would not staff the OTRR the same way.[107] In Rebuttal, Otter Tail has made no adjustments in its field supervisory personnel in response to BNSF's criticisms.

In terms of office staff, in Opening, Otter Tail included an office staff of 17, including a Vice President Engineering/Mechanical, Director of Engineering Services, three Managers of Engineering Services, two Managers of Purchasing, two Directors of Maintenance Operations, six supervisors of maintenance-of-way and two supervisors of communications. In contrast, BNSF provides twenty office staff personnel including: a chief engineer, six subsequent engineers, two supervisors, two

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[107] Again, this is inconsistent with the stand-alone concept. The question is not how the work could be done (or would be done by the incumbent railroad), but rather how a least-cost start-up railroad would organize itself to manage and carry out its MOW needs in the most efficient yet feasible manner possible.

directors, a track designer, four managers and four administrative assistants. BNSF's office staffing is excessive for the OTRR which has only 1284 route miles and is a newly built railroad. The volume of work for a railroad of this size and complexity simply does not justify, for example, both an Engineer - Signals and an Engineer - Communications, or a separate Director Engineering and a Field/Public Works Engineer and Track Designer/Estimator, or a separate Director Track, a Manager Track Gangs, a Manager Manpower Planning, plus a Manager of Programs and Budgets, or a separate Manager of Rail, a Supervisor Welding/Grinding, plus a Supervisor and Manager Work Equipment. These are excesses not suited, or needed, to operate an efficient, least cost railroad.

Otter Tail's general staff will cover the same duties and responsibilities as those assigned by BNSF. By combining duties and responsibilities where appropriate, it is able to accomplish the same work, and more efficiently, with less people. In Rebuttal, Otter Tail retains the office staffing relied on in its Opening Evidence.

(b) Field Maintenance Personnel

With respect to field maintenance personnel, BNSF once again has misstated (or misunderstands) the OTRR's division of responsibilities between contract and in-house work. The OTRR will not contract out work such as inspection of right-of-way, track, signals, bridges, electrical and mechanical systems, or fueling and other facilities. It will not contract replacement of broken rails, servicing of switch machines, switch heaters, rail lubricators, signals, or cleaning of culverts, spot tie and fastener replacement, restoration of track structures as a result of derailments, or any other routine duties. On the contrary, OTRR maintenance crews are fully capable, and are equipped to handle such tasks. The OTRR, however, will outsource (i) vegetation control, (ii) rail grinding,

(iii) track geometry testing, (iv) rail testing, (v) major building maintenance, and (vi) all program track, signal, communication, electrical and bridge maintenance.

This division of labor closely mirrors that followed today on several Class I, regional and short line railroads, including the former WRPI. BNSF also points out that sometimes multiple problems will occur within the same maintenance district and that the lengths of the districts may make it more difficult to utilize another maintenance gang from a neighboring district on a temporary basis. This is a false assumption on BNSF's part, as Otter Tail has positioned its forces to handle all the day-to-day functions in each district, and to be in position to assist in emergencies on adjoining territories when required. Forces headquartered on the heavy-tonnage line are never more than an hour or two away. Otter Tail's MOW personnel are located and staffed as planned for in Opening.

In addition to disagreeing with the unnecessarily generous overall MOW staffing levels proposed by BNSF, Otter Tail likewise disagrees with the purported need for permanent staff to attend to electrical and communications requirements, both at the supervisory and labor levels. This work will be outsourced, an approach that has been used successfully on other railroads, such as the former Missouri Western and the Indiana Central Railroads.

Except where the work is of a very minor nature, repairs to bridges and other structures also will be outsourced. As common in the industry, in-depth inspections of these facilities will be contracted out.

BNSF proposes a number of reasons why Otter Tail's MOW force is too small. BNSF is incorrect for numerous reasons. First, BNSF suggests that the OTRR's size, geometry and tonnage handled require it to follow the kind of Class I railroad MOW program BNSF uses or size and staff the OTRR to either the MRL or the FEC. For the reasons discussed previously, neither MRL nor

FEC are viable comparisons for the OTRR. The size of BNSF's staff and force is a moot point, because, as previously discussed, its philosophy of combining both maintenance and program forces together paints an apples to oranges picture when compared to the OTRR.

Second, a high-quality railroad property such as the OTRR need not build the kind of huge in-house MOW staff that has characterized much of the railroad industry. In fact, in Mr. McDonald's experience, most MOW managers are engaged in efforts to reduce their oversized office and field staff. This can be very difficult, however, because most Class I MOW departments include a hodgepodge of personnel forced together through years of mergers, employee-protective conditions, and frequently-burdensome union contracts. As exhibited here, BNSF makes a concerted effort to conceal the real reason extra people are on its own payroll.

Third, Otter Tail's experts have taken the opposite approach, designing the OTRR's MOW staff from the bottom-up. Contrary to BNSF's assertions, Otter Tail's expert identified the work that would need to be performed on a spot and contract basis. For the spot work, Otter Tail developed for each of 14 field crews the most efficient (but still commonly used and well-equipped) crew size of one foreman, nine maintenance workers, two signal maintainers and one track inspector. Otter Tail assigned sufficient personnel in each crew to conduct inspections and maintain the track, signals and other appurtenances on a day-to-day basis. It then developed other management sufficient to direct the overall work being performed and to schedule and assist contractors with program and larger maintenance projects.

Fourth, BNSF also suggests that Otter Tail has failed to account for unexpected emergency track outages caused by a variety of factors such as washouts, floods, land slides and slope failures. Significant rock slides and washouts almost always require assistance from contractors. However,

the permanent in-house work force is equipped to assist with such an occurrence, and is capable of repairing damages where the slide or washout is relatively minor in nature. On the other hand, Otter Tail, in Opening, has provided for the expenses associated with using contractors in cases of major washouts or slides.[108]

Fifth, BNSF's maintenance strategy is behind the times. Prior to about 1990, most program maintenance work was carried out by railroads' in-house construction gangs, in a manner like that presented in BNSF's Reply. Much has changed in the intervening years with respect to the execution of program work. Large scale suppliers, such as Plasser Thuerer, a world-wide company, have developed equipment capable of renewing rail and ties, all in a single operation. These contractors prefer to furnish their own qualified personnel to operate its highly sophisticated equipment for maximum productive output. Additionally, they have the capability to furnish the make-up required for any kind of program maintenance project (including high-speed, out-of-face surfacing) required and the personnel to operate their equipment.[109] OTRR has taken advantage of this concept, where BNSF, restricted by its own work rules, cannot. If it tries to do so, as have a number of Class I railroads, they pay the contractor, plus, they get "time-slipped" by their own people. Other railroads, such as the former Conrail, did so anyway, since they could no longer compete with the new, modern machinery of the large-scale contractors, by merely renting the equipment, and using their own operators. This, however, requires extensive training for a job usually lasting a relatively short period of time, plus a number of on-site contractor experts, all at additional costs, and all of which is avoided by OTRR.

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108 See Otter Tail Opening at III-D-61.

109 As previously noted, Rail America is actively and successfully using outside contractors for programmed maintenance.

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Sixth, large in-house maintenance gangs were historically developed to cope with maintenance requirements in adverse conditions before the advent of heavy modern welded rail and equipment. Similarly, here the OTRR (which is being built to modern, heavy-haul standards with heavy CWR) has no need for the kind of large in-house MOW gangs proposed by BNSF.

Finally, another test of the proper size of a MOW force is the number of field personnel per mile. In this case, BNSF has one field person per and Otter Tail has one field person per 6.4 route miles. By comparison, WRPI, with considerably higher tonnages than OTRR, averaged one person for every Included in its numbers, BNSF has, again inflated OTRR's needs by assigning "night time" personnel, stationed at OTRR's yards in Donkey Creek and Glendive. These night time personnel are not necessary. WRPI never had "night time" personnel at its Bill or South Morrill, Nebraska relay yards. In fact, WRPI didn't even have a "daytime" gang headquartered at either of these yards, preferring to cover maintenance requirements from Lusk, WY, at a distance of over 60 miles from either yard. Contrary to BNSF's misguided assertions, OTRR has sufficient personnel at, or nearby, both its primary relay yards; i.e., Donkey Creek and Glendive, to cover its maintenance needs and any emergencies that may arise. Otter Tail considers its staffing for the OTRR to be reasonable and consistent with current, efficient industry practice.

BNSF concludes its overview of the OTRR's maintenance-of-way needs by asserting that the OTRR requires a permanent MOW work force totaling "at least" 497 employees. This is 2.2 times the number of employees that Otter Tail posited on Opening and provides in its Rebuttal restatement.

BNSF asserts that Otter Tail fails to provide adequately for the cost of small tools and equipment for the maintenance gangs, including rail saws, rail drills, rail pullers, etc. BNSF is not correct. Not only are they equipped with essential small power tools, they are, in addition equipped

with spot tampers, ballast regulators/snow plow, backhoes, welding equipment, and hi-rail trucks, complete with lifting capability to transfer and change rails and other heavy items. Otter Tail has provided these forces with the hand tools, power tools and mechanized equipment needed to perform any day-to-day maintenance tasks that arise. Otter Tail has also positioned two Model-40 Burro Cranes, one at Glendive and one at Donkey Creek, capable of moving over the railroad to handle materials, ditching projects, and track and switch panels as required. Larger tasks, as previously indicated, are scheduled to be accomplished by contractors, and all the equipment required for those programs will also be furnished by the contractors. Otter Tail, in Rebuttal, continues to use the same tools and equipment expense assigned to its day-to-day forces in its Opening Evidence.

(c) Signals Maintenance Personnel

BNSF provided for 41 signal maintainers needed for the OTRR. On Rebuttal, Otter Tail continues to include 42 field signal maintainers. However, BNSF adds six electronic technicians, six inspectors, a three person dispatch team, and eighteen maintenance crew members. BNSF also adds a communications maintenance department consisting of five Foremen, five maintenance technicians, six communications technicians, 13 communication maintainers and ten radio shop technicians.

Mr. McDonald has reviewed the communication and signals ("C&S") personnel and determined that Otter Tail provided sufficient personnel in its Opening Evidence to handle the communications and signals inspection and maintenance requirements of the OTRR. Like BNSF, Otter Tail also determined the number of maintainers required in consideration of industry standards for AAR unit per maintainer. Based on the units in each of the six territories, FRA requirements, and travel time involved, sufficient forces are included in the basic gangs to cover

testing and repairs of all signal equipment on OTRR. As stated in Otter Tail's Opening Evidence, the C&S Supervisors, headquartered at Donkey Creek and Glendive, will conduct all FRA testing of wayside signals, switches, DED's and highway crossing protection equipment, plus its telecommunication facilities, in concert with the assistance of the field maintainers. The frequency of these tests vary, from a monthly basis to 3-month, 6-month, one-year and two-year cycles. BNSF, again, has overstated the requirements of the OTRR. OTRR has the flexibility to qualify any member in its basic force to perform any number of functions, including its signals and communications network maintenance. BNSF, on the other hand, based its plan on the limited concept of one function-one person, which is inconsistent with accepted SAC principles.

In large measure BNSF's communication maintenance personnel are also overstated as a result of its unnecessary increase in communication facilities and equipment. For example, as shown in Section III-D-3, BNSF requires a radio for every locomotive and in addition a radio for each trainmen, thus having five radios on each train. In addition, BNSF installs a PBX telephone exchange at each field location, even those where there are only a few employees and BNSF included an unnecessary teleconference system to cover the entire railroad. Most office employees of the OTRR are located at the Donkey Creek headquarters or Glendive Yard. The OTRR communication system as designed by Mr. Kruzich, which BNSF says it accepts,[110] is perfectly adequate to meet the needs of the OTRR. The additional communication equipment that BNSF adds, is unwarranted. Further, without BNSF's excessive communication equipment, there is no need for BNSF's additional C&S maintainers.

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[110] See BNSF Reply at III.D-114.

Finally, BNSF also increases the number of microwave towers on the OTRR from 45 towers to 58 towers. As discussed in Section III-F-6, infra, the 13 additional towers are totally unnecessary.

(d) Purchasing/Materials Management

BNSF also includes an eight-person purchasing and stores department. The OTRR does not need a separate department for this function. Otter Tail has included two Managers of Purchasing and Budget on its staff, who are responsible for the purchasing of materials needed by the MOW gangs based on requests from the Supervisors. Materials needed by the MOW gangs will be stored at the gang headquarters rather than a central location. These materials will be shipped directly from the manufacturer to the gang headquarters, a practice conducted by most railroads. This eliminates the need for double handling the materials. As for the material needed for program work, the material will not be ordered until needed and the contractors will be responsible for distributing the materials to the work site assisted, as necessary, by basic forces.

(e) Building and Bridges Crew

In its Opening Evidence, Otter Tail staffed two Building and Bridges ("B&B") crews each with four personnel: an electrician, a carpenter, a mason and a water service person. In Reply, BNSF increases each B&B crew to 23 people, including an inspector, three foremen, nine carpenters, one water service person, two machine operators and a nine person mobile gang.

Otter Tail assigned the four-person B&B crews, headquartered at Donkey Creek and Glendive, to handle all the various tasks that are not feasible or economical to be done by outside contractors. This includes minor bridge and building repairs, maintenance of electrical facilities,

fueling facilities and water service. The forces are multi-talented, well equipped, and capable of assisting one another in the performance of these various tasks.

OTRR has at its disposal qualified contractors to handle the large tasks in the "structures" category and has included the requisite costs in its contracting expenses. By contrast, BNSF provides for a much larger force, since its unionized workforce prevents it from using outside contractors. OTRR B&B crews, combined with its outside contractors, are sufficiently equipped to cover the various required tasks in their respective territories. In Rebuttal, Otter Tail continues to provide the same four-person B&B crews, headquartered at Donkey Creek and Glendive, as used in Opening.

(f) Compensation

BNSF also takes issue with the salaries Otter Tail has used for the MOW personnel. In Opening, Otter Tail used salaries, including overtime and constructive allowances,

In contrast, BNSF relied on selected hourly rates for different positions based on hourly rates and an overtime mark-up on a hand written sheet in response to Otter Tail's request for workpapers underlying BNSF's Reply evidence.[111] This workpaper provides no source for either the hourly rates or the implicit number of hours worked per year. Otter Tail continues to use its Opening Evidence salaries,

for the field personnel and office staff.

BNSF adds to its unsupported wage calculations a 51 percent fringe benefit ratio

The workpapers supporting BNSF's

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111 See Otter Tail Rebuttal electronic workpaper"Salary_WP_Response.pdf".
112 See BNSF Reply Narrative at III-D-179.

calculation are five pages of expense reports for BNSF's way and structures expense, with handwritten numbers on the bottom of the fifth page that show an amount of 51 percent. However, the derivation of these handwritten numbers is not identified. Further, none of the numbers on the five pages of printed documents are identified as being included in the handwritten numbers on the last page.

the 40 percent fringe ratio used by Otter Tail is conservative and Otter Tail continues to rely on this amount in Rebuttal.

In addition to taking exception to Otter Tail's fringe benefit additive, BNSF argues that Otter Tail's additives to MOW personnel costs for: office supplies (5 percent); travel, meals and accommodations (10 percent); and materials and supplies (20 percent) are not explained and therefore should be replaced by BNSF's additives. However, BNSF fails to point out that in most instances it uses the same additives that are used by Otter Tail.

For example, both Otter Tail and BNSF use the five percent additive to determine office supplies expense. Both Otter Tail and BNSF use the 10 percent additive to determine travel, meals and accommodations expense. The difference being that BNSF applies the travel expense additive to all MOW personnel and Otter Tail applies the travel expense additive to only those MOW personnel that will travel. For example, the 14 OTRR track gangs are assigned to maintenance districts and they are provided crew trucks for traveling while performing their duties. Given the limited territory in which the track gangs operate, track gangs will go on duty, perform their tasks, and go off duty at their assigned maintenance locations and there is no need for providing travel

[113] See Otter Tail Rebuttal electronic workpaper "RR_Info_Otter Tail.xls".

expense for these personnel. Other OTRR MOW employees, such as structures employees are provided a travel expense as they do travel over larger portions of the OTRR system.

With regard to the materials and supplies additive, Otter Tail uses a 20 percent additive and BNSF uses various additives ranging from 24 to 35 percent. BNSF provides no explanation for its additives or why they would change from position to position. The 20 percent additive for materials and supplies is based on Mr. McDonald's experience, which Otter Tail continues to rely on in Rebuttal.

In Rebuttal, Otter Tail continues to use 17 personnel in the general offices at Donkey Creek and Glendive, and 204 field personnel for OTRR. This number of well-equipped personnel, in conjunction with the contract forces, is sufficient to address the maintenance requirements of a well-designed and well-constructed railroad such as the OTRR.

ii. Equipment

In Otter Tail's Opening Evidence, it provided each maintenance gang with a high-rail inspection vehicle, a fully equipped high-rail boom truck, a fully-equipped welder's truck, an auxiliary van, and two signal maintainer's vans. Additionally, each of the six (6) Supervisors-Maintenance-of-Way is assigned a tamper/liner and a ballast regulator/snow plow to be used by the crews in his territory. Otter Tail also provided tools and miscellaneous equipment for each of the gangs and a Model-40 burro crane for both the north and south territories.

In Reply, BNSF includes $14.7 million in costs for equipment.[114] Half of this amount is for program work, which the OTRR contracts out. Of the remaining amount, much of it is overstated

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[114] See BNSF Reply Exhibit III-D-4-1. In Supplemental Reply, BNSF reduced the amount of equipment required by the OTRR to correspond to the reduction of 24 maintenance field personnel caused by its elimination of rerouted non-coal traffic.

due to BNSF's overstated personnel counts. As discussed previously, BNSF's maintenance cost estimate is based on BNSF's experience maintaining a rail line that was not properly constructed to begin with, causing all kinds of maintenance problems that the OTRR would not face.

BNSF's calculations of equipment costs are yet another example of its concerted effort to overstate the OTRR maintenance expense. BNSF estimates that the total annual expense for spot maintenance of way equipment costs will be $14.7 million, as compared to Otter Tail's estimate of $2.6 million.[115] BNSF's estimate of these expenses, as summarized in "III D 4 Maintenance of Way", is based on data derived from a March 1995 BN spreadsheet entitled "Maintenance and Ownership Costs for Establishing Rental Rates Including Adjustment Factor and Overhead." See BNSF.RP.WP.III.D.4-0107A-0107D. This data includes line items for various types of equipment, annual field labor costs, annual field material costs, annual shop labor, annual shop material, fuel costs, annual ownership costs, and total annual cost (which is a cumulative total of all the other items). BNSF uses the total of the listed costs by equipment type to calculate equipment costs by indexing the data to reflect 2002 costs. A review of this workpaper and Reply "III D 4 Maintenance of Way", reveals that BNSF's estimate of the necessary equipment and related expense is not only overstated in terms of the amount of the equipment that would be needed, but that it is grossly inflated by the inclusion of labor/operational costs that are accounted for elsewhere in the BNSF's maintenance of way and general operating costs.

For example, the BNSF includes 52 "Air Compressors with Tools" at a cost of compressor, to which it adds per compressor for field and shop labor and material costs, thereby producing a total for these compressors.[116] Thus,

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115 See, Otter Tail Opening electronic workpaper "Otrr-mow.xls".
116 See BNSF electronic workpaper "III D 4 Maintenance of Way_Errata.xls", sheet "Annual Spot Equip".

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the total cost on this item relates to labor and other operating costs that are already accounted for in BNSF's maintenance costs. Similar inappropriate markups to the equipments costs include:

As these examples demonstrate, BNSF's inclusion of labor and materials costs in their equipment cost calculation vastly increases the equipment estimate as BNSF has already provided for the labor and material costs required for operation of the equipment. On the four items discussed above alone, BNSF has added to the annual operating costs. Otter Tail has recalculated the BNSF's spreadsheet to exclude the labor double-count of labor expense. When these labor costs are removed from BNSFs' calculation of spot maintenance equipment costs, the total annual spot maintenance of way equipment costs is reduced from $14.7 million to $4.3 million or a nearly 70% reduction.[120] Even this reduced equipment cost is overstated to the extent that it is based on supplying equipment to a MOW spot maintenance staff that is manned at levels that reflect the BNSF's inefficient staffing levels discussed above.

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117 Id.
118 Id.
119 Id.
120 See, Otter Tail Rebuttal electronic workpaper "III D MOW Adjusted Equipment Cost.xls"

In Rebuttal, Otter Tail continues to use the same maintenance-of-way equipment cost as it relied on in its Opening Evidence.

iii. Materials

In Opening, Otter Tail included material costs based on the various replacement rates.[121] Track material replacement was based on the average density traveling over the various segments and an assumed rail life of 1.5 billion gross tons ("BGT") per mile.[122] Based on Mr. McDonald's experience, tie life was estimated at 25 years for double track, 20 years for all other main track and 30 years for yard and set-out tracks. Turnout life was estimated at 15 years and the resurfacing cycle was calculated to be 3.7 years (assuming four years for double track and three years for single track and passing sidings). Normalized material costs were based on service lives of 74 years for bridges and culverts, 54 years for grade crossings and highway overpasses/underpasses, 73 years for fences and signs, 23 to 31 years for signal and communications equipment, and 34 years for buildings, shops and facilities.

Otter Tail has also reviewed BNSF's exhibits and workpapers and determined that BNSF has accepted many of Otter Tail's service life estimates and it continues to use them in its Rebuttal calculations.

iv. Contract Work

In Opening, Otter Tail included several maintenance items that the OTRR would contract out. This includes the labor and equipment necessary for the programmed replacement of rail and ties (and the associated other track material), out-of-face surfacing, weed spray, rail geometry testing,

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121 See Otter Tail Opening electronic workpaper "OTRR_MOW.123".

122 As discussed previously, 1.5 BGT is a conservative figure, especially since 80% of the tangent track of WRPI has lasted over 2.0 BGT and continues in service.

rail grinding, ultrasonic rail testing, building maintenance and other miscellaneous items (such as clean-up of spills, ditching, survey work and bridge work) plus allowances for derailments and heavy snow removal.

In Reply, BNSF disagrees with some of the contract work Otter Tail has included, agrees with some that Otter Tail has included, and provides for some additional contract work that Otter Tail did not include. However, in most instances, BNSF provides no support for the unit costs it proposed for the contract work.

The major disagreement between BNSF and Otter Tail is Otter Tail's contracting out for rail and tie replacement and resurfacing. In Otter Tail's opinion, contracting is the most efficient and cost-effective way for the OTRR to handle its cyclical track replacement and surfacing work. BNSF disagrees because BNSF does not do this, so it has included the costs for numerous personnel that the OTRR would have to hire and extensive equipment that the OTRR would have to purchase. As discussed earlier, contracting out program maintenance is a viable real world option. It is consistent with Mr. McDonald's experience and is a practice currently used by Rail America.[123] Contracting for these services is what a least-cost, most-efficient rail carrier would do, and it is certainly feasible. There are a substantial number of railroad construction and maintenance companies in existence that the OTRR could hire to perform these services.[124]

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123 See Otter Tail's Rebuttal Workpaper Vol. 2, p. 6077.

124 Contrary to BNSF's inference, contractors are quite capable of providing the necessary maintenance functions for the OTRR. WRPI was entirely built using several private contractors. These contractors were responsible for the laying and plating of ties so they could certainly replace ties. These contractors were responsible for laying the CWR, spiking and anchoring the rail, destressing the rail and installing flash butt welds in the field. Clearly, they are capable of replacing rail. These contractors were responsible for distributing ballast, raising (in 4-inch increments), lining and tamping the track, so they certainly are capable of handling out-of-face surfacing. BNSF's claim that contractors are not capable of performing these services is unfounded.

BNSF also disagrees with the cost that Otter Tail has used from R.S. Means for the contracting of these services.[125] The use of costs from R.S. Means has been accepted and relied on not only by Otter Tail and BNSF in this very proceeding but by the STB (and its predecessor, the ICC) in numerous stand-alone cost decisions. Moreover, while BNSF claims that Otter Tail selected an inappropriate unit cost from R.S. Means for its contract labor, it fails to point out that the resulting costs used by Otter Tail for these contract services are actually higher than that relied on by BNSF. In Rebuttal, Otter Tail has continued to use the costs from R.S. Means for these contract services. Based on the R.S. Means data, Otter Tail has included a lump sum amount of $44.6 million for contract labor for track program maintenance.[126] By contrast, review of BNSF's workpapers reveals that BNSF has calculated a total of only $23.7[127] million for contract labor and equipment for program maintenance.

With regard to other contracting costs, BNSF claims that: (1) Otter Tail has understated vegetation control costs by failing to include spraying for noxious weeds; (2) ultrasonic rail testing should be done three times per year; (3) the OTRR main routes should have track geometry testing twice per year; (4) all of the building maintenance should be classified as spot; (5) Otter Tail has excluded yard cleaning costs; (6) Otter Tail has excluded costs to clean ditches; and (7) Otter Tail has excluded the costs for shoulder ballast cleaning. Otter Tail addresses each of these claims below:

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125 See BNSF Reply Narrative at III-D-118, note 80.

126 See Otter Tail Opening electronic workpaper "OTRR_MOW.123".

127 Sum of labor and equipment for annual track replacement costs and annual maintenance of way equipment costs from BNSF Reply Electronic workpaper "III D 4 Maintenance of Way.xls", plus annual work train requirements, excluding expenses related to bridges and miscellaneous work trains. See Otter Tail Rebuttal Workpaper Vol. 2, pp. 6079 to 6081.

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(a) Vegetation Control

As shown in Otter Tail's Opening workpapers, it included a cost of over for vegetation control based on a contract between BNSF and Right-A-Way Applicators, Inc. for providing vegetation control services in 13 Western states, including the five states in which the OTRR operates.[98] Using the information provided in this contract, Otter Tail calculated an average cost of for vegetation control costs, including noxious weed control.[99]

In Reply, BNSF contends that Otter Tail's cost per mile is understated because:

1. the contract relied on by Otter Tail specifies that BNSF would provide the chemicals at its own cost;
2. Otter Tail failed to include the hourly cost for equipment as specified in the contract; and
3. Otter Tail failed to include the cost for aerial application of vegetation control chemicals.

BNSF then, based on a hand written note,[100] calculates a cost of $ per route mile for pre-emergent vegetation control and a cost of $ per mile for noxious weed control, which allegedly includes the cost of the contractor, chemicals and ground and aerial application of the chemicals.

Otter Tail disagrees with BNSF's calculations for several reasons. First, contrary to BNSF's statement that the contract does not include the cost of chemicals, it specifically states that the contractor will furnish at Contractor's cost, all materials, superintendence, labor, equipment, tools, supplies, permits, signs and transportation necessary to perform the work specified.[101] Based on this

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98 See Otter Tail Opening Workpaper Vol. 4, pp. 3258 to 3261.
99 See Otter Tail Opening Errata electronic workpaper "Otr_mow.123", tab "Contract."
100 See BNSF RP.WP. III.D-4 0108.
101 See Otter Tail Opening Workpaper Vol. 4, p. 3258.

language, Otter Tail contends that the contractor, not BNSF, provides the chemicals required for vegetation control.

Second, this contract provides that the contractor will provide vegetation control in the OTRR states and does not specify that it will provide any aerial application of chemicals, nor do the invoices provided by BNSF in discovery show any billing for aerial application. Finally, BNSF's only basis for including aerial spraying is a footnote on the hand written note, indicating that the cost BNSF uses for chemicals includes the costs for helicopter, truck and hi-rail vehicles. BNSF provides no support for its contention that aerial spraying is required, nor does it provide any workpaper supporting its cost for chemicals, including the cost of helicopter, truck and hi-rail vehicles.

BNSF's contention that the contract relied on by Otter Tail requires BNSF to pay an hourly charge for equipment is correct. Examination of an invoice submitted by Right-A-Way Applicators, Inc. shows that

per hour for equipment.[102] This amounts to for equipment.[103] In Rebuttal, Otter Tail revises its unit cost for vegetation control to include the cost for equipment as provided for in BNSF's contract.

(b) Ultrasonic Rail Testing

BNSF's suggestion for ultrasonic rail testing three times per year (based on increments of 15.0 MGT per mile) is excessive. In the experience of Otter Tail's engineering/MOW expert, testing every 15 MGT is not necessary.

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[102] See Otter Tail Rebuttal Workpaper Vol. 2, pp. 6089 to 6090.

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(c) Rail Grinding

On Opening, Otter Tail's experts provided for rail grinding every 100 MGT using two passes. Otter Tail's plan was based on the experience of Otter Tail's expert witnesses. BNSF, on the other hand, argues that grinding must be performed more frequently (e.g., every 60 MGT for tangents, 15 MGT for curves greater than 3 degrees, and 30 MGT for curves less than 3 degrees). BNSF's proposed grinding rates are excessive. BNSF fails to realize that, based on the annual MGT currently operated on the Joint Line, its proposal translates to rail grinding being in progress somewhere on that line almost every day of the year (which is obviously not the case). Otter Tail's grinding frequency for the OTRR is consistent with grinding experience performed by WRPI, a newly constructed railroad, based on the same specifications and moving more annual volume than the OTRR in unit train service.

BNSF also argues that Otter Tail has understated the unit cost associated with rail grinding. BNSF states that Otter Tail uses a unit cost of developed from an invoice from BNSF's contractor, [104] and incorrectly claims that Otter Tail's unit cost excludes the reimbursable costs related to fuel, rail lubricants, water and fire retardant. See BNSF Reply at III.D-190. BNSF uses a rail grinding unit cost of $ per pass mile, or 66 percent higher than the $ per pass mile used by Otter Tail, which it alleges includes the necessary reimbursable expenses.[105]

an amount for the contractor's "reimbursable expenses" and

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[104] Contrary to BNSF's narrative, Otter Tail actually use an amount of $807.50 per "pass mile".

[105] See BNSF.RP.WP.D.4-0121. This workpaper is a handwritten sheet that provides no supporting documents for BNSF's $1,342 unit cost.

the contractor's mark-up for reimbursable expenses.[106] Thus the $ unit cost developed and relied upon by Otter Tail includes the items, that BNSF claims that Otter Tail has omitted. BNSF's unsupported and arbitrary rail grinding unit cost is must be rejected.

(d) Rail Geometry Testing

Rail geometry testing is essentially a tool used to confirm the information provided on a regular basis by the track inspectors in preparation for the annual maintenance programs. BNSF takes exception to both Otter Tail's frequency of rail geometry testing and the unit cost Otter Tail uses for rail geometry testing.

OTRR's track inspectors will be qualified on all FRA regulations regarding track alignment, profile, cross level, superelevation, gauge and twist. Based on Mr. McDonald's experience at WRPI, a heavy tonnage rail line constructed using the OTRR specifications, requires rail geometry testing only once per year and only class 4 track and above require testing.[107] In Mr. McDonald's experience, rail geometry testing is required only once per year and should be performed in the early spring, before the start up of program maintenance work and after the consequences of winter have been realized. Assuming the railroad has qualified inspectors, as does the OTRR, any additional alignment problems will be identified during the normal rail inspection process. Rail geometry testing is needed only on a limited basis to reaffirm the rail inspections and to give credence to, or offer critical assessment of, the rail inspections. Stated differently, in Mr. McDonald's experience, most carriers rely on their own inspectors who are familiar with the track conditions in their territories, to make assessments necessary to maintain the track for which they are responsible. Therefore, most carriers find that rail geometry testing is needed and used on only a limited basis.

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106 See BNSF.RP.WP.D.4-0120.

107 Stated differently, yard tracks and set out tracks do not require rail geometry testing.

BNSF is correct that Otter Tail did understate the miles of track needing inspection in its Opening Evidence. In Rebuttal, Otter Tail provides for rail geometry testing of all mainline and branch line track miles on an annual basis.

In addition, to taking exception to Otter Tail's frequency of rail geometry testing, BNSF states that it is inappropriate to use the rail geometry testing unit cost per mile that UP proffered, and the Board affirmed, in FMC because it does not necessarily represent the cost of rail geometry testing that would be incurred today.[108] Rather than using the unit cost of $305 per track mile developed by Otter Tail from FMC, BNSF uses a unit cost of $85 per track mile based on the unsupported testimony of its engineering witness. As the unit cost developed from FMC was supported in that proceeding and affirmed by the Board in its decision, Otter Tail continues to rely on the $305 unit cost it used in Opening.

(e) Miscellaneous Engineering

BNSF argues that Otter Tail's unit cost for miscellaneous engineering of $1,078 per route mile, developed from the Board's decision in FMC, has no relevance in this proceeding. BNSF claims that the two SAC railroads in these proceedings are entirely different and carry different traffic. BNSF concludes: "Thus, there is no basis for applying this unit cost to the OTRR."[109] BNSF's statement is not correct. Review of the public version of UP's Reply evidence in the FMC proceeding reveals that both railroads are located in the upper midwest and western region of the United States, both are heavy haul railroads that carry primarily coal traffic in unit train shipments originating in the PRB and both carry some additional non-coal commodities. Thus, there is no reason to not accept the unit cost found reasonable by the Board in FMC.

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[108] See BNSF Reply at III.D-191.
[109] See BNSF Reply at III.D-192.

Moreover, in place of the FMC unit cost, BNSF witness Albin estimated a total miscellaneous engineering expense for bridges, concrete repairs, steel repairs and total contract costs. Mr. Albin provides no support for his estimates. The sum of Mr. Albin's estimates are $750,000, plus an additional $365,293 for contract maintenance of buildings, for a total of $1,115,293 for the OTRR in the base year. In contrast, application of Otter Tail's unit cost of $1,078 per route mile to the 1,284 OTRR route miles yields miscellaneous engineering expense of $1,384,152, or $268,859 more than that proposed by BNSF. Given the similarity of the values produced by these two approaches and the similarities of the two SARR systems, the unit cost derived from FMC is entirely appropriate and Otter Tail continues to use this unit cost in Rebuttal.

Finally, it should be noted that BNSF indicates that Otter Tail inappropriately claims that its unit cost covers the cost of derailment. As discussed, infra, Otter Tail has included derailment costs as a separate line item in rebuttal.

(f) Ditch Cleaning

BNSF accepts Otter Tail's unit costs for ditch cleaning but rejects its five year frequency for cleaning. BNSF claims that, because Otter Tail's ditches are only two feet wide and two feet deep, that they must be cleaned every two years. BNSF provides no support for this position. Based on Mr. McDonald's experience Otter Tail continues to assume ditches are cleaned, on average, every five years.

(g) Snow Removal

In Opening, Otter Tail developed a snow removal cost for the OTRR of $226,208 based on the unit cost of $216 per mile (indexed to 2002) submitted by UP and accepted by the Board in *FMC*. In Reply, BNSF indicated that its unit cost for snow removal for the system equals route

mile. BNSF then increases this amount by an unsupported to adjust for the "Northern territory" to produce a total cost for snow removal for the OTRR

The source for BNSF unit costs are a series of e-mails which show BNSF's total system cost Review of BNSF's 2002 R-1 Annual Report shows that BNSF had a system wide snow removal cost of miles in 2002. Using the numbers BNSF reported to the STB to determine BNSF's cost per mile for snow removal yields a cost of rather than the per mile used by BNSF. In Rebuttal, Otter Tail continues to use its $216 cost per route mile accepted in *FMC* for a territory similar to that traversed by the OTRR and applies it to OTRR route miles to yield snow removal cost of $277,344.

(h) Derailment and Casualties

BNSF claims that Otter Tail did not include any expense related to derailments and casualties. BNSF includes a derailment cost on its actual derailment costs on the line segments that comprise the OTRR

Inclusion of BNSF's derailment expenses are incorrect for two reasons. First, BNSF's actual experience is not indicative of the derailments that would occur on the OTRR. The OTRR is a newly constructed railroad comprised of new heavy weight CWR. By comparison, many portions of the BNSF system are comprised of older rail that was installed dozens of years ago and is therefore more prone to failure than the OTRR's new system. Second, Otter Tail has included in its maintenance

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110 See BNSF Reply Narrative at III-D-195.
111 See BNSF.RP.WP.III.D-0128 to 0129.
112 See BNSF Reply Narrative at III-D-195 to D-196.

expense those costs associated with its basic forces, who are equipped to restore track damaged by derailments.

However, the costs associated with cleaning wreck sites, i.e., rerailing or cleaning up wrecked cars, lading, debris and restoring the right-of-way and roadbed, exclusive of track restoration, is a legitimate expense charged to derailments, and is a separate line item. In Rebuttal, Otter Tail has included approximately this expense, based on the amount reported in BNSF's 2002 R-1 Annual Report.[113]

BNSF also includes a separate line item for casualties that are allegedly related to losses due to floods, washouts, land slides and slope failures. Including this amount as a separate line item results in a double count of casualty costs on the OTRR because these losses are already covered in the operating expense insurance calculation. In Opening and in Rebuttal, Otter Tail determined the insurance cost for the OTRR based on the percent of total operating expense, less depreciation, that BNSF pays for insurance based on data included in Schedule 410 of BNSF's R-1 Annual Report. Included in the determination of insurance expense as a percent of total expense are lines 115, 116 and 117 of Schedule 410, which are Maintenance of Way expenses for "Casualties and Insurance". As a result, the casualties that BNSF would have the OTRR include as a separate line item are already covered in the calculation of the OTRR's insurance expense.

(i) Coal Spills and Other Environmental Cleanup

BNSF also includes $270,000 annually for clean-up of coal dust along the rail line. BNSF's justification for this expense is that it cleans coal dust off the Orin Line. BNSF estimates this "will

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[113] Based on BNSF's 2002 R-1 Annual Report "Clearing Wrecks" is of trains operating expenses. This amount is applied to the OTRR's train operating expense. See Otter Tail Rebuttal electronic workpaper "Clearing Wrecks.xls."

Further, BNSF is silent as to any coal dust cleaning activity that takes place elsewhere along the OTRR route. As stated previously, the combined BNSF and UP tonnage on the Orin Line is more than 350 million net tons annually. By comparison the OTRR will move only 107 million net tons or 30 percent of the actual Orin Line tons in the base year. Based on the greatly reduced tonnage, Otter Tail does not add this expense in Rebuttal.

In addition to expense related to coal spills, BNSF states that it routinely incurs substantial expense for environmental mitigation associated with maintenance of fueling facilities. BNSF indicates that it incurred an expense of 1995 to 1996 period for environmental mitigation of its fueling facility in Lincoln, Nebraska. See BNSF Reply at III.D-196.

BNSF's assumption that the OTRR would experience the same level of cleanup and prevention costs that it has historically experienced with respect to its fuel tanks at Lincoln is unrealistic. Unlike the BNSF's facilities, the OTRR's fueling facilities will be new and will contain the latest and best fueling technology as compare with to the mix of older and newer equipment that is used by BNSF at Lincoln. Moreover, as BNSF's Lincoln yard has undoubtably experienced numerous spills as it has been heavily used for dozens of years. There is no reason to believe that the environmental mitigation cost associated with the Lincoln yard has any relevance to a brand new fueling facility.

(i) Stabilization of Embankment

BNSF has included $600,000 and $415,000 in annual maintenance expense related to the stabilization of the embankment along the Yellowstone River and on the Jamestown Subdivision, respectively. BNSF explains that the Yellowstone River continually changes its channel causing the

railroad grade to be eroded. BNSF plans to over the next five years to address this problem.[114]

Additionally, BNSF indicates that due to high water levels in small lakes and sloughs in recent years in the Jamestown Subdivision, it has had to raise the level of railroad grade by as much as eight feet in some locations. BNSF states that this problem has been caused by "unusually high rainfall that eastern North Dakota has been experiencing over the past several years."[115] BNSF also indicates that it expended to address this issue in 2001 and forecasts that it will have to do so every three years.

Otter Tail accepts BNSF proposed amounts for soil stabilization along the Yellowstone River and in the Jamestown Subdivision. However, as the cause of these expenditures are either short term in nature (a five year project in the instance of the Yellowstone River) or are related to the "unusually high rainfall" in the Jamestown Subdivision, they are not necessarily recurring problems. As a result these expenses are most appropriately considered to be capital expenditures, or program maintenance related to BNSF roadbed, rather than operating expenditures or spot maintenance. In Rebuttal, Otter Tail has included the amount proposed by BNSF for embankment stabilization, however, Otter Tail included only 10 percent of this expense as an operating expense or spot maintenance.[116]

c. Spot Maintenance Percentages

As explained in Otter Tail's Opening Evidence, it was necessary to develop the annual spot maintenance[117] costs for use in calculating the stand-alone costs of the OTRR. This was done by

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114 See BNSF Reply at 199.
115 See BNSF Reply at 200.
116 Otter Tail Rebuttal electronic workpaper "Otrr_mow rebuttal.xls."
117 Spot maintenance costs represent those expenses required to keep the OTRR in operation on a day-to-day basis such as inspections, labor, and material to effect repairs quickly and actions taken to maximize the life of the OTRR's assets. The remaining maintenance costs represent asset replacement costs that are accounted forby in Otter Tail's stand-alone DCF model.

assigning a portion of the personnel and equipment and the contract costs to spot maintenance.

Otter Tail's method for allocating a portion of total maintenance costs to spot maintenance reflects the efficient and cost-effective combination of OTRR forces and contract forces. Perhaps, because of its unfamiliarity with this innovative practice, BNSF simply dismisses Otter Tail's allocation process as "arbitrary." Instead, BNSF develops its maintenance costs, and its separation between operating (spot) and capital (program), through dogmatic reliance on its own procedure without any consideration of what would be most efficient, cost-effective, and feasible, for the stand-alone railroad. In fact, Otter Tail's allocation process is anything but arbitrary. It is based on Mr. McDonald's nearly 40 years of railroad experience including his role as Chief Engineer of CNW. BNSF's acceptance of Otter Tail's allocation process for separating general office expenses between operating (spot) and capital (program) expenses shows that Otter Tail's method is sound.

In Reply, BNSF takes exception to Otter Tail's allocation process and develops two maintenance estimates, one for operating expenses (spot) and one for capital expenses (program maintenance). Although BNSF criticizes Otter Tail's process, it offers no substantive reason for rejecting it and accepting BNSF's methodology, other than suggesting that its method reflects its own experience.

BNSF argues that Otter Tail has not allocated a sufficient percentage of personnel, time, and materials costs to spot maintenance, stating that on Opening Otter Tail allocated only 21.9 percent to spot maintenance. By contrast, BNSF estimates that 46.5 percent of the OTRR's total maintenance is spot maintenance.[118] BNSF then attempts to support its spot maintenance, based on its own experience, which it claims was

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[118] See BNSF Errata electronic worksheet, "III-D-4 maintenance-of-way_Errata.xls."

2003. The only support for these spot percents is an email from BNSF's witness Albin to BNSF counsel which states that another BNSF official calculated these ratios. No documents showing or supporting their calculation are provided.

Contrary to BNSF's claim that its spot percent for 2002 equals Otter Tail has calculated the BNSF spot percentage for 2002 based on data reported by BNSF to the STB in its R-1 Annual Report. This calculation shows that BNSF's percent spot for MOW maintenance is only nearly the same percent spot of 21.9 percent included in Otter Tail's Opening Evidence.

Otter Tail, in developing its Opening Evidence percentage followed generally accepted accounting principles, which expense repairs that maintain a component's life and capitalize costs that extend a component's life. This results in the percentage close to the BNSF's Annual Report R-1 value. As a result, Otter Tail continues to use 21.9 percent calculated in its Opening Evidence even though use of BNSF R-1 Annual Report data would result in lower costs for the OTRR.

Finally, the daily spot maintenance work for the OTRR crews varies widely. Contrary to BNSF assertions, Otter Tail's MOW plan does not simply out-source all items. In fact, Otter Tail has included over $18.7 million a year for spot maintenance, which is over $14,500 per route mile for a brand-new railroad and represents about 22 percent of the total MOW expenditures. Otter Tail's budget is sizeable considering that major repairs and replacements are being handled through program maintenance and capital replacement programs. Otter Tail's spot maintenance per route

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[119] See Otter Tail electronic workpaper "BNSF spot.xls". To calculate BNSF's 2002 spot percent, it accumulated all the maintenance of way operating expenses from Schedule 410 of BNSF's R-1 Annual Report and added these amounts to the capital expenditure amounts for corresponding investment accounts as shown in Schedule 330 to BNSF R-1 Annual Report and divided the operating expense portion by the sum of the operating expense and capital expenditures.

mile is higher than that actually expended by BNSF in 2002. As shown in BNSF's 2002 R-1 Annual Report, BNSF expended in operating cost for maintenance of way expenditures in 2002 to maintain This results in an operating maintenance cost of track mile.[120] By contrast, BNSF proposes that the OTRR expend $40,546 in operating cost per track mile to maintain the OTRR which is greater than it actually spent to maintain its own rail lines in 2002.

d. Program Maintenance – Capital Expenditures

i. Scheduling

As discussed in Part III-C-2, there are a variety of times in which program maintenance can be scheduled. As such, BNSF's lengthy planning debate is without merit. It is entirely reasonable for program maintenance to be scheduled well in advance, and even if some variation to that schedule becomes necessary, Otter Tail has left significant windows for such maintenance. In fact, as previously stated, Otter Tail has provided 6-hour windows each day, over the entire railroad, each day of the year, including the winter months when program work is non-existent, and weekend days, when program work is rare.

In reality, all major program work is scheduled well in advance, and, as work progresses, one block at a time is taken out of service for that particular gang. Preliminary review and agreement of all programs, as well as daily and constant monitoring and coordination of all on-going work in progress, by both Transportation and Engineering officers, precludes any excessive delay to the train operation, and further, ensures successful completion of the work. Otter Tail's operating and maintenance plan is designed with these factors in mind, i.e., coordinating the various facets of its

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[120] See Otter Tail Rebuttal electronic workpaper "Track Maint per mile.123."

MOW work programs, and working closely in coordination with the Transportation Department.

ii. Capital Replacement Program

In calculating MOW costs on Opening, Otter Tail based asset replacement costs on assumed product life spans and salvage percentages provided by its MOW witnesses. The principal disagreement between the parties with respect to asset replacement stems from BNSF's use of 1.2 billion gross ton mile life of rail versus 1.5 billion gross ton miles used by Otter Tail. Otter Tail continues to use the DCF life expectancy to determine replacement costs. Other capital replacement program cost differences are based on the different OTRR track configurations that Otter Tail and BNSF have proposed. Otter Tail has retained its opening track design. The adjusted track miles (by type) are reflected in Otter Tail's Rebuttal asset counts and costs as the basis for replacement costs.

e. Summary of Maintenance of Way Expenses

Table III-D-29 below compares the total maintenance-of-way costs for the OTRR included in BNSF's Reply Evidence and Otter Tail's rebuttal.

Table III-D-29

Comparison of OTRR Total Maintenance-of-Way Costs – BNSF Reply vs. Otter Tail Rebuttal

	Item	Amount (Millions) BNSF Reply[1/]	Otter Tail Rebuttal [2/]	Difference [3/]
	(1)	(2)	(3)	(4)
1.	Personnel, Materials and Equipment	$84.7	$42.0	$42.7
2.	Contract Work	$12.7	$43.4	$(30.7)
3.	Normalized Maintenance	$52.0	$11.2	$40.8
4.	Total M/W Costs - 2021	NA	$96.6	NA
5.	Total M/W Costs - 2002	$154.1	$81.9	$72.2
6.	Operating Expense/Spot Maintenance Cost 2002	$71.7	$18.2	$53.5

1/ BNSF electronic file "III-D-4 Maintenance of Way_Errata.xls."
2/ Otter Tail electronic file "OTRR_MOW Reb.xls"
3/ Column (2) - Column (3).

As shown in Table III-D-29 above, Otter Tail has developed spot maintenance-of-way costs for the OTRR of $18.2 million per year.[121] BNSF's estimate of $71.7 million is overstated due to a failure to efficiently utilize contract work and an improper reliance on BNSF's maintenance experience in the PRB, which reflects all of the maintenance problems and issues that have arisen due to the original flawed design and construction of the Orin Line.

Most importantly, BNSF has improperly attempted to compare other railroads with an entirely different operational agenda and no similarity what-so-ever to that of OTRR. BNSF suggests that what these railroads require is what OTRR must also require. The only true comparison to the OTRR is WRPI, and that comparison, BNSF carefully avoids. The WRPI operation is, in part, similar to

121 These costs are shown in Otter Tail's electronic workpaper "OTRR_MOW.xls".

OTRR's, i.e., it is a modern designed and constructed railroad, built for the purpose of moving heavy tonnage trains in the most efficient manner possible. WRPI's actual MOW experience is a more appropriate benchmark for OTRR's MOW staffing and expenditures, and is, therefore, the best evidence of record.

By contrast, BNSF has an entirely different operating philosophy for the OTRR, one that could work, but one that is inefficient and extremely expensive for a newly built, properly designed, least cost, most efficient competitor. BNSF's Reply makes every effort to justify the need for an excessive physical plant, and a huge, bureaucratic work force. These expenses are simply not realistic for the OTRR.

In Rebuttal, Otter Tail continues to rely on its Opening Evidence for MOW staffing and expenditures.

5. LEASED FACILITIES

In Opening, Otter Tail assumed that, as a replacement for BNSF, the OTRR would participate in any joint facility agreements on the same basis as BNSF. Specifically, the OTRR would operate over the RRVW tracks, a distance of 10.52 miles, between Brushvale and East Breckenridge, Minnesota. Otter Tail applied the cost per train mile provided for in the agreement between RRVW and BNSF, escalated to 1Q02 for all trains passing over this segment on the peak day, increased to an annual amount and then reduced to reflect the annual volume moving in the 2002 base year.

In Reply, BNSF accepts the use of RRVW trackage rights for this segment and applies the costs per train mile, indexed to 1Q02 to the reduced traffic levels it proposes in its Reply evidence.

REDACTED

In Rebuttal, Otter Tail continues to apply the trackage rights fees to the traffic levels included in its Opening and Rebuttal evidence.

6. LOSS AND DAMAGE

In its Opening Evidence, Otter Tail calculated a loss and damage rate per ton based upon BNSF loss and damage data provided in discovery and tonnage statistics reported in BNSF's Quarterly Commodity Statistics. BNSF adopted this rate to its reduced traffic levels in its Reply evidence. In Rebuttal, Otter Tail continues to apply loss and damage cost to the traffic levels included in its Opening and Rebuttal evidence.

7. INSURANCE

In its Opening Evidence, Otter Tail calculated the OTRR's insurance expense to equal million. To arrive at this figure, Otter Tail used BNSF's 2002 Annual Report Form R-1 to determine that BNSF's ratio of insurance expense to total operating expenses was percent (insurance ratio). Otter Tail then applied this ratio to OTRR operating expenses.

In Reply, BNSF claims that the OTRR would not be able to achieve the same low rate of insurance that is enjoyed by BNSF and states that the insurance rates paid by rail carriers is determined by the size of the railroad, with revenues being determinant of a carrier's size. Based on this, BNSF calculates a three year average ratio of insurance cost to operating expenses less depreciation, casualties and insurance for carriers with revenues less than $1.0 billion. BNSF applies the resulting average of 5.5 percent to its calculation of the OTRR's operating expenses[122] to yield an insurance cost of $19.7 million.

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[122] In BNSF's Errata to its October 8, 2003 Reply, it indicates that the insurance expenses in its Reply are understated because BNSF failed to apply insurance costs to its training and start-up costs. As discussed previously, training and start-up costs should be amortized in the DCF model and are therefore not operating expenses and the insurance percent does not apply.

BNSF argues that Otter Tail's application of BNSF's insurance ratio is invalid because large Class I railroads (UP, BNSF, NS, and CSX) enjoy economies of scale when it comes to purchasing insurance. BNSF claims that these large carriers are self insured with presumably lower deductibles than small Class I carriers, regional carriers, and short-line carriers. Now, instead of being too big to enjoy the efficiencies of smaller carriers, in terms of insurance, BNSF has decided that, the OTRR is too small to enjoy the economies of a large carrier. Under BNSF's logic, one would expect that insurance would occupy a larger portion of operating expense budgets at smaller railroads. Tiny Providence & Worcester (P&W) with only $22 million in revenues in 2001 should bear a proportionately larger burden than Kansas City Southern (KCS) with $569 million in 2001 freight revenues. The table below reveals this not to be the case. KCS's 2001 insurance was 7.0 percent of operating expenses whereas P&W's was 3.8 percent, about the same as BNSF's. The relationship that BNSF posits between size (revenue) and insurance costs does not exist. BNSF's argument that a 3.76 percent ratio would be infeasible for the OTRR is also invalid. Many other carriers in Table III-D-30 below have an insurance ratio of between 3 percent and 4 percent, with some below 3 percent.

Table III-D-30

Insurance/Casualty Percentage of Operating Expense (Excl. Depreciation)

	Railroad (1)	Insurance % (2)	Source (3)
1.	OTRR BNSF	5.5 %	BNSF calculation
2.	OTRR Otter Tail	3.7 %	BNSF R-1 Sch. 410
3.	GTW (2001)	3.1 %	R-1 Sch. 410
4.	SOO (2001)[1/]	2.9 %	R-1 Sch. 410
5.	IC (2001)	5.8 %	R-1 Sch. 410
6.	IC (1998)	2.9 %	R-1 Sch. 410
7.	IC (1997)	1.9 %	R-1 Sch. 410
8.	KCS (2000)	4.0 %	R-1 Sch. 410
9.	KCS (2001)	7.0 %	R-1 Sch. 410
10.	KCS (2002)	2.0 %	R-1 Sch. 410
11.	WC (2000)	3.6 %	10-K MD&A
12.	FECR (2001)	3.8 %	10-K MD&A
13.	P&W (2001)	3.8 %	10-K MD&A
14.	G&W (2001)	5.6 %	10-K MD&A

[1] See Otter Tail Rebuttal electronic file "RR_Info_OTP.xls."

BNSF's reasoning that carriers with less than $1.0 billion in revenues would have insurance rates of 5.5 percent is not correct. In its Rebuttal Evidence, Otter Tail continues to use the same insurance ratio as proposed in its Opening Evidence and applies that ratio to its restated operating expenses in Rebuttal.

8. AD VALOREM TAXES

Otter Tail's Opening evidence included a unit cost per route-mile for ad valorem tax in each state where the OTRR operates, based on the amount of taxes BNSF paid in each state and BNSF

route miles in each state. Consistent with the Board's decision in TMPA,[123] Otter Tail then adjusted the ad valorem taxes to reflect the fact that the OTRR leases rolling stock and that the lessor as the owner of the equipment, not the lessee, would be responsible for the ad valorem taxes on this equipment.

In Reply, BNSF accepts the unit costs calculated by Otter Tail, but rejects the adjustment for leased rolling stock, stating that Otter Tail has not shown that the taxes BNSF pays are reflective of its equipment property in each state or that BNSF does not pay tax on leased property.[124] Further, BNSF claims that neither North Dakota nor South Dakota even have a tax on personal property and therefore Otter Tail's adjustments in these states is unwarranted.

Otter Tail's expert spoke with Mr. Brian O'Brien, a representative of CIT Group's Rail Resources Team, which is very active in leasing railroad rolling stock. Mr. O'Brien, indicated that, when negotiating a lease for rolling stock, the party that pays the property taxes is determined and in CIT Group's experience it most frequently is the lessor.

Further, BNSF's statement that the state of South Dakota does not have a personal property tax is incorrect. Review of the South Dakota tax laws states:

> All property, real and personal, belonging to any railroad company in this state actually and necessarily used in the operation of its line or lines of railway in this state shall be considered as "operating property," and shall be assessed for the purposes of taxation by the secretary of revenue and regulation, and not otherwise.[125]

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123 See TMPA at 106.

124 In Supplemental Reply, BNSF eliminated the line between Snowden and Glendive and therefore reduced its Ad Valorem to reflect the elimination of this line. As Otter Tail has not made this reduction, it has not adjusted it Ad Valorem tax calculation.

125 See Otter Tail Rebuttal Workpaper Vol. 2, pp. 6105 to 6108.

While the language of North Dakota's tax law is not as clear as that of South Dakota, it does permit an assessment of the value of all "operative property" of a railroad operating in the State for tax purposes. In addition each railroad operating in the state is required to provide the tax commissioner of the state with: "A description of the personal property of the company" on an annual basis.[126]

In Rebuttal, Otter Tail continues to adjust the OTRR's ad valorem taxes to reflect the lessor's responsibility for ad valorem taxes on rolling stock.

9. OTHER -- OTTER TAIL ALTERNATIVE CASE

As discussed in Section III-A, on Supplemental Opening Otter Tail presented an Alternative Case, selecting traffic for the OTRR using the MSP revenue division criteria. The primary difference in Otter Tail's Base Case and its Alternative Case is that the Alternative Case includes additional short-haul coal traffic on the OTRR rail lines between Donkey Creek and Converse Yard, Wyoming. As discussed in Otter Tail's Supplemental Opening, this increase in traffic results in an increase in the number of locomotives, rail cars and train crews required by the OTRR. In addition, other operating statistics such as locomotive unit miles, locomotive unit hours and OTRR provided coal car hours also increase. Table III-D-31, below, shows the incremental units and operating statistics required for Otter Tail's Alternative Case.

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126 Id.

Table III-D-31
OTRR Alternative Case Incremental Operating Statistics

	Item (1)	Alternative Case Incremental Units (3)
1.	SD70 MAC locomotives	11
2.	Coal locomotive unit miles	200,736
3.	Railroad provided rail cars	1
4.	T&E crews	20
5.	Road Train Crew Overnight Stays	251

Source: Exhibit III-C-3.

Based on the Alternative Case operating statistics, Otter Tail has calculated operating costs for the OTRR.[127] Table III-D-32 below, sets forth the OTRR rebuttal operating expenses for both Otter Tail's Base Case and the Alternative Case.

[127] See Otter Tail Rebuttal electronic workpaper "Otter Tail_Opr_Exp_Reb_Alt.123".

Table III-D-32

Annual Operating Expenses For The OTRR — 2002 – Alternative Case

($ In Million)

	Item (1)	Otter Tail Base Case (2)	Otter Tail Alternative Case (3)
1.	Train and Engine Personnel	$46.39	$47.98
2.	Trackage Rights	$0.04	$0.04
3.	Maintenance of Way (spot)	$18.21	$18.21
4.	Locomotive Fuel and Servicing	$78.25	$78.77
5.	Locomotive Lease	$16.97	$18.00
6.	Locomotive Maintenance	$19.87	$20.78
7.	Operating Personnel Incl. Materials and Supplies	$10.91	$10.92
8.	Freight Car Expenses	$24.62	$24.62
9.	Ad Valorem Taxes	$5.12	$5.12
10.	Loss and Damage	$1.06	$0.78
11.	General and Administrative	$11.65	$11.65
12.	Insurance	$8.76	$8.90
13.	Total	$241.85	$245.71

Source: Column 2: Exhibit III-H-3, p. 23.
Column 3: Exhibit III-H-4, p. 23.

As shown in Table III-D-32, the total Alternative Case base year operating costs for the OTRR equal $245.77 million, or an increase of $3.92 over those for Otter Tail's Base Case.

III-E
NON-ROAD PROPERTY INVESTMENT

III.E. NON-ROAD PROPERTY INVESTMENT

1. Locomotives

BNSF has accepted Otter Tail's proposal that the OTRR will lease all of its locomotives and that the annual locomotive lease cost should be included as an operating expense.

2. Railcars

BNSF has accepted Otter Tail's proposal that the OTRR will lease all of its railcars and that the annual railcar lease cost should be included as an operating expense.

3. Other

The cost of OTRR's other equipment, including company automobiles, radios, and telephones, is included as an operating expense and are discussed in Section III-D-3. Maintenance-of-way vehicles such as hi-rail trucks and other maintenance-of-way equipment are also included as an operating expense and are discussed in section III-D-4. BNSF also does not dispute that some items of equipment, in particular computers and related houseware, will be capitalized.

III-F
ROAD PROPERTY INVESTMENT

III.F. ROAD PROPERTY INVESTMENT

On Opening, Otter Tail developed road property investment costs of $2,407.3 million for the OTRR based on the requirements of the OTRR and the tenets of the Coal Rate Guidelines to develop the costs for a least cost, most efficient carrier.[1] Based on the OTRR's total of 1,771.3 track miles, this equated to $1.36 million per track mile.

On Reply, BNSF presented road property investment costs of $4,468.5 million for its version of the OTRR.[2] Based on the 1,767.6 track miles in BNSF's version of the OTRR, this equates to $2.53 million per track mile, nearly double Otter Tail's costs and significantly higher than the $1.7 million per track mile contained in TMPA,[3] the most recent decision in a western coal rate case.

BNSF attempts to justify its inflated costs by stating that its version of the OTRR is based on real-world construction specifications, including BNSF, AREMA, and industry standards. BNSF even goes so far as to chastise Otter Tail because the OTRR allegedly does not adhere to the WRPI specifications, in some instances, nor provide any supporting documentation of the WRPI design criteria.

On Opening, Otter Tail stated that the design criteria of the OTRR are consistent with those used on WRPI "in many instances."[4] Otter Tail's chief engineering witness, Mr. Richard H. McDonald, was Vice President - WRPI and was in charge of the WRPI construction project. Mr.

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1 DSee Otter Tail's July 14, 2003 Errata, revised Exhibit III-F-1 (contained in electronic workpaper "OTRR CONSTRUCTION.XLS"). References to Otter Tail's Opening Evidence in this Section also incorporate the modifications contained in Otter Tail's July 14, 2003 Errata.

2 See BNSF's March 22, 2004 Errata, electronic workpaper "III F OTRR Construction_Errata.xls." References to BNSF's Reply Evidence in this Section also incorporate the modifications contained in BNSF's March 22, 2004 Errata.

3 See TMPA at 111 ($4.097 billion in investment) and 68, 70 (2,407.9 track miles).

4 See Otter Tail Opening at III-F-3.

McDonald has first-hand knowledge of the WRPI design criteria. However, consistent with the Coal Rate Guidelines, Mr. McDonald used WRPI specifications for the OTRR only where appropriate; in other instances, where different specifications were more economical yet feasible, WRPI specifications were not used. A prime example of this is the 28-foot roadbed. WRPI was constructed entirely with a 28-foot roadbed but such a specification was unnecessary for the OTRR in lighter density sections. This departure from WRPI specification was incorporated into the design of the OTRR, as apprpriate.

As noted throughout this Rebuttal Narrative, BNSF has attempted to maximize the construction costs of the OTRR by increasing costs wherever possible and introducing new cost items not presented in previous stand-alone cost proceedings. Thus, BNSF shows its disregard for the Coal Rate Guidelines definition of the stand-alone railroad as a least cost, most efficient carrier.

On Rebuttal, Otter Tail has made minor modifications to its Opening configuration of the OTRR and its road property investment costs, resulting in road property investment costs of $2,589.1 million.[5] Table III-F-6 below[6] compares Otter Tail's Opening,[7] BNSF's Reply, and Otter Tail's Rebuttal road property investment costs for the OTRR at 1Q02 levels.[8]

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5 These modifications consist of increasing the size of Fargo Yard, minor changes in route miles, the correction of a few calculation errors in Otter Tail's Opening Evidence spreadsheets, and the incorporation of the few valid BNSF criticisms.

6 Table III-F-1 through Table III-F-5 were included in Section III-F of Otter Tail's June 13, 2003 Opening Narrative. (Tables III-F-1, III-F-4 and III-F-5 were subsequently modified by the changes reflected in Otter Tail's July 14, 2003 Errata.)

7 As revised by Otter Tail's July 14, 2003 Errata.

8 A detailed comparison between BNSF's Reply and Otter Tail's Rebuttal road property investment is contained in Exhibit III-F-15. Exhibits III-F-1 through III-F-14 were included with Otter Tail's January 10, 2003 Opening filing. (Exhibits III-F-1, 2, 3, 6, 11, 13 and 14 were subsequently modified by the changes reflected in Otter Tail's July 14, 2003 Errata.)

Table III-F-6

Comparison of OTRR Estimated Road Property Investment - Otter Tail Opening, BNSF Reply and Otter Tail Rebuttal - 1Q02

($ In Millions)

Item	Otter Tail Opening	BNSF Reply	Otter Tail Rebuttal	BNSF Reply (Over/Under) Otter Tail Rebuttal
(1)	(2)	(3)	(4)	(5)
1. Land	$33.27	$78.90	$46.58	$32.32
2. Roadbed Preparation	605.66	1,485.79	634.41	851.38
3. Culverts	26.86	27.73	27.03	0.70
4. Track				
a. Geotextiles	$0.33	$1.38	$0.34	$1.04
b. Ballast	63.80	68.88	64.11	4.77
c. Subballast	38.27	121.36	38.83	82.53
d. Cross ties	141.38	157.45	159.44	(1.99)
e. Rail (incl. welds and comp joints)	191.38	219.24	193.82	25.42
f. Turnouts (incl. all components)	42.34	67.71	44.49	23.22
g. Rail lubricators	6.35	4.35	4.21	0.14
h. Tie plates, clips, spikes and anchors	63.26	69.35	70.19	(0.84)
i. Derails and wheel stops	0.00	1.06	0.07	0.99
j. Material transportation	109.30	120.09	112.18	7.91
k. Track construction labor	212.61	274.63	276.70	(2.07)
5. Tunnels	$0.00	$0.00	$0.00	$0.00
6. Bridges				
a. Bridges	$151.21	$410.76	$163.51	$247.25
b. Walkways on bridges	4.61	5.10	4.65	0.45
7. Signal, Communications and Other Equipment				
a. Signals - CTC (incl. electric locks)	$202.45	$204.06	$202.81	$1.25
b. Hot bearing and dragging equipment detectors	2.22	2.19	2.22	(0.03)
c. Communications system	11.85	60.41	12.33	48.08
8. Building and Facilities				
a. Fueling stations	$13.50	$43.78	$13.50	$30.28
b. Locomotive maintenance	8.98	13.47	8.98	4.49
c. Car repair facilities	0.00	4.63	0.00	4.63
d. Station and office buildings	4.74	6.09	4.74	1.35
e. Roadway buildings	4.29	9.18	4.29	4.89
9. Public Improvements				
a. Fences	$18.14	$21.45	$18.15	$3.30
b. Roadway signs	0.41	0.72	0.43	0.29
c. Highway crossings - material & protection	3.64	13.57	3.90	9.67
d. Highway crossing overpasses	9.55	14.61	9.55	5.06
10. Subtotal	$1,068.11	$3,507.94	$2,121.46	$1,386.48
11. Mobilization	$44.83	$90.94	$48.55	$42.39
12. Engineering	176.26	470.55	187.97	282.58
13. Contingency	215.82	399.05	231.14	167.91
14. Grand Total	$2,407.32	$4,468.48	$2,589.12	$1,879.36

Prior to discussing each of the components listed in Table III-F-6 above, a description of the various stand-alone cost scenarios presented in this proceeding is necessary. Table III-F-6 above

shows a comparison of Otter Tail's Opening and Rebuttal Base Case to BNSF's Reply Case (as modified by BNSF's March 22, 2004 Errata). As discussed in Section III-A, supra, both Otter Tail and BNSF have presented two stand-alone cost scenarios. Otter Tail's Base Case represents the stand-alone system presented on Opening and modified slightly on Rebuttal. The Base Case reflects revenue divisions based on market division information provided by BNSF in discovery and a traffic base selected using the market revenue division criteria. Otter Tail's Alternative Case represents the stand-alone system presented on Supplemental Opening. The Alternative Case reflects revenue divisions based on the STB's Modified Straight Mileage Prorate ("MSP") methodology and a traffic base selected using the MSP revenue division criteria. The primary difference between the two systems is that the Alternative Case includes additional short-haul coal traffic on the OTRR rail lines between Donkey Creek, WY and Converse Yard, WY; this increase in traffic necessitated changing an 8-mile section of single track to double track.[9] A summary discussion of the investment for Otter Tail's Rebuttal Alternative Case is contained at the end of this Section III-F. However, all of the support contained herein for Otter Tail's Base Case, including the modifications on Rebuttal, is applicable to Otter Tail's Alternative Case.

BNSF has also presented two stand-alone cost scenarios in this proceeding. BNSF's Reply Case (as modified by BNSF's March 22, 2004 Errata) responded to Otter Tail's Opening (Base Case) stand-alone system. This is the presentation that Otter Tail critiques in detail on Rebuttal. In its March 22, 2004 Supplemental Reply, BNSF submitted a new stand-alone system that excluded a significant amount of non-coal overhead traffic for the OTRR.[10] This is referred to herein as BNSF's

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9 This was fully explained in Otter Tail's January 9, 2004 Supplemental Opening.

10 As discussed in Section III-A, Otter Tail disagrees with BNSF's elimination of this traffic.

Supplemental Reply Case. In its Supplemental Reply Case, BNSF eliminated the OTRR branch line from Glendive, MT to Snowden, MT and reduced the facilities on the OTRR rail line between Glendive, MT and Fargo, ND. In developing the road property investment for its Supplemental Reply Case, BNSF followed the same procedures and used the same unit costs as in its Reply Case but adjusted the quantities to reflect the elimination of the Snowden Branch and the reduction to the facilities between Glendive and Fargo. As BNSF followed the same procedures and relied on the same unit costs, Otter Tail's criticisms of BNSF's Reply Case contained in this Section III-F apply to BNSF's Supplemental Reply Case as well.

1. Land

Otter Tail's Opening evidence described the multiple-step process its expert followed to determine the value of land for the OTRR.[11] To briefly summarize, Otter Tail's witness first determined the acres of land required for the right-of-way and relied on Otter Tail's other experts for determination of the acres required for yards, buildings, and communications systems. Second, a physical inspection of the property was made to determine the actual land use types along the existing BNSF rail lines comprising the OTRR right-of-way. Third, based on this physical inspection, the land use types were categorized as agricultural, industrial, commercial, residential, and open space[12] and the acreage required for the OTRR was assigned to each of these categories through a parceling process. Fourth, for each land use type and county through which the OTRR passes, comparable land sales were found in close proximity to BNSF's existing right-of-way. Fifth,

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11 See Otter Tail Opening at III-F-4 to III-F-10.

12 Open space includes areas where the right-of-way crosses significant rivers or natural terrain that makes development extremely difficult.

based on the unit prices represented in comparable land sale data,[13] Otter Tail's expert estimated an "Across The Fence" value for the land required by the OTRR. In Opening the total acres of land required for the OTRR were determined to equal 15,674 acres and the land value required for the OTRR as of the first quarter 2002 equals $33.3 million.

BNSF accepts Otter Tail's determination of land values for the majority of the length of the OTRR right-of-way. The significant areas of disagreement are: 1) the major urban areas along the line; 2) the line between Donkey Creek, Wyoming and Jones Junction, Montana; 3) the Orin Line in Wyoming; and 4) selected smaller towns along the line. In addition, BNSF is excessive in its assessment of the value of land needed for yards and microwave towers. On Rebuttal, Otter Tail demonstrates that BNSF's criticisms in its Reply related to these areas are unfounded.

In those areas where BNSF did not accept Otter Tail's calculation of land value, its evaluations are fatally flawed. On Rebuttal, Otter Tail rejects BNSF's exaggerated assertion that the OTRR would require 16,108 acres of land at a total cost of $78.9 million, more than double Otter Tail's $33.3 million estimate. On Rebuttal, Otter Tail accepts BNSF's parceling of land in the two urban areas where BNSF performed a land analysis and uses BNSF's comparable land sale data in those areas to determine land values for the OTRR. In addition, as discussed in Section III-B, infra, Otter Tail has redesigned the Fargo Yard to accommodate I&I switching for a limited number of non-coal trains moving in overhead service. This results in an increase in the acres of land required for the Fargo Yard and the associated land value. On Rebuttal, Otter Tail determines the total amount of

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[13] See Otter Tail Opening Workpaper Vol. 5, pp. 3404 to 3899.

land required for the OTRR to equal 15,697 acres. The land value required for the OTRR as of the first quarter 2002 equals $46.6 million.

Otter Tail's Rebuttal to BNSF's Reply Evidence on acreage and land value required by the OTRR is discussed in this section under the following headings:

a. Right-of-Way Property Value

b. Yard Acreage and Property Value

c. Microwave Tower Acreage and Property Value

d. Easements

a. Right-of-Way Property Value

As stated previously, BNSF accepted Otter Tail's land values for the vast majority of the length of the OTRR right-of-way. The significant areas of disagreement between the two parties are: 1) the major urban areas along the line; 2) the line between Donkey Creek, Wyoming and Jones Junction, Montana; 3) the Orin Line in Wyoming; and 4) selected smaller towns along the line. In these areas, BNSF claims that Otter Tail has significantly undervalued the land required along the right-of-way. For these areas, BNSF has increased the proposed land value from $17.3 million to $53.8 million.

The basis of BNSF's claims and increase in OTRR land values is twofold. First, BNSF repeatedly questions the qualifications of Otter Tail's land witness; and second, BNSF provides an analysis of land values for a portion of the OTRR as conducted by BNSF's own witness. BNSF's attack on Otter Tail's land witness appears to be an attempt to distract attention from the fact that BNSF's land values are arbitrary and lack correlation to the relevant land sales included in its

evidence. In fact, close review of the land values BNSF proposes for these areas of disagreement shows that BNSF's land values are not supported by the evidence of record in this proceeding and are inaccurate based on BNSF's own data. Moreover, when Otter Tail asked BNSF to produce work papers that show the relationship between BNSF's comparable land sales observed by its expert and the land values assigned to the OTRR, BNSF replied that its land witness was out of town and would respond to this request upon his return.[14] As of this date, BNSF has not responded. Therefore BNSF's land value is not supported and for this reason alone it should be rejected.

i. Major Urban Areas Along the OTRR

BNSF claims that Otter Tail has undervalued the land in four cities (two urban areas) along the OTRR right-of-way. These include Bismarck and Mandan, North Dakota (Bismarck/Mandan) and Fargo, North Dakota and Moorhead, Minnesota (Fargo/Moorhead).[15] In these two urban areas, BNSF has increased Otter Tail's proposed land value from $5.0 million to $20.6 million. To justify this increase, BNSF's Reply Testimony contends that Otter Tail has failed to identify the proper use of land within urban areas and, as a result, understates the value of that land. To correct that problem, BNSF's Reply evidence states that its expert witness, Mr. Tesh: "...personally and thoroughly inspected the location for the OTRR ROW and performed a full sales comparison appraisal. He spent eight days in the two metropolitan areas, spending about equal time in each."[16] Presumably, Mr. Tesh relied upon these manifold inspections and comparison appraisals to arrive

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14 See Otter Tail Rebuttal electronic workpaper "BNSF Responses to OTP Land WP Requests.pdf." Otter Tail submitted four workpaper requests to BNSF related to Mr. Tesh's land valuation study. BNSF responded in a similar manner to all four requests and, despite the five-month extension in the schedule, has yet to produce any additional information.

15 Bismarck and Mandan are six miles apart, separated by the Missouri River. Fargo and Moorhead are adjacent cities separated by the North Dakota/Minnesota state line.

16 See BNSF Reply at III.F-19.

at his assignment of values. However, a comparison of BNSF's comparable land sales with the land values assigned to the OTRR does not bear this out. Rather, from this comparison it is apparent that BNSF consistently overstates the OTRR land values. Table III-F-7 below sets forth, by location and land use type, several specific examples of the inconsistency between BNSF's observed land values and its assignment of value to the OTRR. These examples are based on a comparison of data contained in BNSF Exhibit III.F-1-1 Appendix, "Relevant Land Sales" with Appendix B "Val Unit Detail, Re: OTRR Appraised by Tesh."

Table III-F-7

Examples of Land Overvaluation by BNSF

Location (1)	Highest Relevant Land Sale Price (2)	Range of BNSF Assigned Values (3)	Total BNSF Assigned Value (4)	Value if Acquired At Highest Relevant Sale Price (5)	Percent Overstatement (6)
1. Moorhead					
a. Commercial	$2.25	$1.50 - $20.00	$3,690,296	$1,085,465	340.0%
b. Industrial [1]	0.60	1.50 - 2.75	801,613	234,048	342.5%
2. Fargo					
a. Industrial	0.60	0.10 - 3.70	1,536,356	1,080,200	142.2%
3. Mandan					
a. Commercial	3.15	1.75 - 5.00	1,423,356	1,235,610	115.2%
b. Industrial [1]	0.21	0.05 - 1.70	692,236	130,544	530.3%
4. Bismarck					
a. Industrial [2]	1.17	0.50 - 3.75	1,133,215	694,913	163.1%

[1] Fargo/West Fargo industrial parcel prices used as a proxy for Moorhead industrial parcel prices.

[2] Burleigh County industrial lots located in Bismarck are included in Bismarck data.

Otter Tail's review of the specific examples within each city demonstrates BNSF's consistent pattern of overvaluing land parcels.

(a) Example No. 1 – Moorhead, Minnesota

BNSF Exhibit III.F-1-1, Appendix A, "Relevant Land Sales" shows only two transactions for commercial land use, in 1997 and 2000, in Moorhead, Minnesota. One sale was concluded at $1.90 per square foot, and the other was concluded at $2.25 per square foot. The weighted average sale price is $1.99 per square foot and the simple average price is $2.08 per square foot.

Mr. Tesh estimated that 45 commercial land use parcels exist in the OTRR right-of-way in Moorhead. Mr. Tesh assigns a value that exceeds the maximum observed value of $2.25 per square foot to 43 of the 45 parcels. Further, Mr. Tesh's assigned values exceed the weighted average of the observed values in 44 of the 45 parcels.

(b) Example No. 2 – Moorhead, Minnesota

In BNSF Exhibit III.F-1-1, Appendix A, there are no transactions or land sales listed as "Relevant Land Sales" for industrial use in Moorhead, Minnesota. There was, however, a relevant industrial parcel transaction listed in Fargo, North Dakota, which is directly adjacent to Moorhead. This transaction was concluded at $0.60 per square foot.

Mr. Tesh estimated that 12 industrial use parcels exist in the OTRR right-of-way in Moorhead, Minnesota. His assigned values to these 12 industrial land parcels that range from $1.50 to $2.75 per square foot, or as much as 458 percent of the comparable observed transaction value.

(c) Example No. 3 – Fargo, North Dakota

In BNSF Exhibit III.F-1-1, Appendix A, there is one transaction or land sale listed as a "Relevant Land Sale" for industrial use in Fargo, North Dakota. The sale was concluded in 1999 at $0.60 per square foot. Mr. Tesh estimated that 62 industrial use parcels exist in the OTRR right-of-way in Fargo and assigns values that range from $0.10 to $3.70 per square foot for these 62 parcels. His assigned value equals or exceeds the observed industrial use land value for 34 of the 62 parcels. Further, the simple average price per square foot assigned by Mr. Tesh for these 62 industrial parcels, which equals $0.95, exceeds the actual observed value of $0.60 by 58 percent.

(d) Example No. 4 – Mandan, North Dakota

In BNSF Exhibit III.F-1-1, Appendix A, there are 21 "Relevant Land Sales" transactions or land sales for commercial land use between 1998 and 2000 in Mandan, North Dakota. The range of sale prices for these lots is $0.29 per square foot to $3.15 per square foot. The weighted average sale price for these lots is $1.22 per square foot and the simple average sale price for these transactions is $1.47 per square foot.

Mr. Tesh estimated that 23 commercial land use parcels exist in the OTRR right-of-way in Mandan. Mr. Tesh assigns values that range from $1.75 to $5.00 per square foot to these 23 commercial parcels. Mr. Tesh's assigned values exceed the maximum observed value per square foot for 16 of the 23 parcels. Further, the values assigned by Mr. Tesh exceed both the simple and weighted average prices per square foot for all of the 23 parcels. It is difficult to understand how *all* of the OTRR parcels can possibly exceed the average of the comparable land values.

(e) Example No. 5 – Mandan, North Dakota

In BNSF Exhibit III.F-1-1, Appendix A, there is one comparable transaction or land sale listed as a "Relevant Land Sale" for industrial use in Mandan, North Dakota. The sale was concluded in 1998 at $0.21 per square foot.

Mr. Tesh estimated that 20 industrial land use parcels exist in the OTRR right-of-way in Mandan. Mr. Tesh assigns a value that exceeds the $0.21 observed transaction value for all but one of these parcels. Of the 19 parcels that he assigns values greater than the observed price, Mr. Tesh used prices ranging from $0.50 to $1.70 per square foot, or as much as 810 percent of the observed price.

(f) Example No. 6 – Bismarck, North Dakota

In BNSF Exhibit III.F-1-1, Appendix A, there are two transactions or land sales in 1998 listed as "Relevant Land Sales" for industrial use in Burleigh County, North Dakota. These sales were located in the city of Bismarck. One sale was concluded at $0.37 per square foot, and the other was concluded at $1.17 per square foot.

Mr. Tesh estimated that 25 industrial use parcels exist in the OTRR right-of-way in Bismarck. In developing the parcels to be acquired by the railroad, Mr. Tesh assigns a value that exceeds the higher of the two values observed of $1.17 per square foot in 23 of the 25 parcels.

(g) Summary

As is obvious from the above examples, the land values assigned by BNSF to the OTRR parcels bear little relationship to the comparable land sales observed by BNSF. This fact, combined with BNSF's failure to provide any workpapers supporting the assignment of land values to the OTRR,

or relating the assigned values to the observed comparable land sales, should cause the STB to reject BNSF's land values for these two urban areas.

On Rebuttal, Otter Tail accepts BNSF's estimated parcels and the land use type for each parcel in these two urban areas. Further, given that BNSF's land studies contain more observations of relevant transactions and land sales within the two urban areas, Otter Tail uses BNSF's comparable land sales to derive land values for the parcel. However, unlike BNSF's arbitrary assignment of land values that bear little resemblance to BNSF's observed comparable transactions, Otter Tail calculated the simple average price per unit for each land use category for each city from BNSF "Relevant Land Sales" shown in BNSF Exhibit III.F-1-1, Appendix A. Otter Tail then assigned the average land value by land type to each of the parcels included in BNSF's evidence in each of the two urban areas.

Otter Tail rejects BNSF's proposed assigned value of $20.6 million for land in the cities of Bismarck, Mandan, Fargo and Moorhead, and in Rebuttal uses a right-of-way land value for these urban areas of $14.0 million based on BNSF's parceling and the simple average land values by land use type calculated from BNSF's comparable land sales.[17] A comparison of land values for each of the four cities, including Otter Tail's valuation on Opening, BNSF's Reply and Otter Tail's Rebuttal, is shown in Table III-F-8, below.

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[17] See Otter Tail Rebuttal electronic workpaper "OTRR Land Rebuttal.xls."

Table III-F-8
Comparison of Land Valuations for the Major Urban Areas Along the OTRR Right-of-Way

	Metropolitan Area (1)	OTR Open (2)	BNSF Reply (3)	OTRR Rebuttal (4)
1.	Bismarck Metropolitan Area	$1,778,104	$5,400,000	$4,955,356
2.	Mandan Metropolitan Area	1,754,683	2,900,000	1,622,276
3.	Fargo Metropolitan Area	718,049	5,600,000	4,940,620
4.	Moorhead Metropolitan Area	716,038	6,700,000	2,520,729
5.	Total	$4,966,873	$20,600,000	$14,038,981

ii. Donkey Creek to Moran Junction, Montana

Based on a land valuation study performed by Mr. Tesh, BNSF claims that Otter Tail has undervalued the land on the OTRR right-of-way between the Converse Yard and Moran Junction, Montana (excluding the Orin Line).[18] BNSF has proposed an increase in the OTRR right-of-way value between Donkey Creek and Moran Junction from Otter Tail's $7.7 million to $13.2 million.

BNSF states that Otter Tail's value for this segment is deficient for two reasons. First, BNSF claims that Otter Tail failed to divide the OTRR right-of-way into sufficient parcels for accurate assignment of valuation. Second, BNSF contends that Otter Tail inaccurately valued the parcels it identified. BNSF relies upon a land study Mr. Tesh completed to support its land value. As with BNSF's land values in the four urban areas discussed above, BNSF's assignment of land values bear little relationship to the actual comparable land transactions included in its own evidence. Further,

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[18] See BNSF Reply at III.F-30 to 31. BNSF excludes the Orin Line portion of this segment, which extends from Converse Yard to Donkey Creek Yard, from this discussion even though it was included in Mr. Tesh's valuation. As discussed, infra, BNSF witness Tesh disregards his own land valuation for Orin Line portion of the OTRR and instead relied upon the 23 year old value of the Orin Line as identified in the STB's decision in WTU for the segment between Converse and Donkey Creek.

as BNSF failed to respond to Otter Tail's request for workpapers supporting Mr. Tesh's assignment of land values to the OTRR, or relating his assigned values to the observed comparable land sales, the STB should reject BNSF's land values for the Donkey Creek to Moran Junction portion of the OTRR.

(a) Division of Land Parcels

BNSF claims that Otter Tail failed to divide the OTRR right-of-way into sufficient parcels for accurate valuation. BNSF states that Otter Tail divided the land into approximately 60 segments, while Mr. Tesh created over 530.[19] First, Otter Tail notes that, while Mr. Tesh may have created 530 segments for the entire length of the right-of-way in Wyoming and Montana, a review of BNSF's workpapers shows that only 330 of these actually lie between Donkey Creek Yard and Moran Junction.[20] The remaining 200 segments seem to lie farther north and east of Moran Junction on the OTRR right-of-way or south of Donkey Creek.

Second, as noted above, while Otter Tail agrees that in urban areas more precise parceling may be beneficial, the OTRR right-of-way between Converse Yard and Moran Junction is predominantly grazing or agricultural land and Mr. Tesh's excessive parceling is not required to determine accurate land values. As such, Otter Tail believes that its division of this land into 60 segments is more than sufficient.

Supporting this contention, Otter Tail references the Arthur Andersen land valuation, accepted by the STB in FMC. As developed from UP's Public Version Reply Evidence in FMC, the Arthur Anderson land valuation for the SARR in that proceeding had an average segment length of 3.2

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19 See BNSF Reply at III.F-30 to III.F-31.

20 See BNSF Reply electronic woprkpaper "OTRR Land Conclusions.xls," worksheet "Val_WY_MT."

miles.[21] That SARR spanned nine states and more than 3,000 miles. The state with the lowest average segment length, Illinois, had an average segment length of 1.1 miles. Not surprisingly, Illinois is a state with several urban areas along the right-of-way, and one would expect a lower than average segment length. The state with the highest average segment length in the study, Wyoming, had an average segment length of 6.0 miles,[22] which is almost exactly the same segment length as identified by Otter Tail for this portion of the OTRR, which also runs through rural Wyoming and Montana. The simple act of dividing land into more parcels is not inherently more valuable or worthwhile, especially if it distracts from the real issue at hand – the valuation applied to the land.

(b) Valuation of Land Between Donkey Creek and Moran Junction

BNSF claims that Otter Tail has undervalued the parcels it has created, based on Mr. Tesh's inspection of the right-of-way in this area and subsequent purported reappraisal of the land using his own studies. However, as is the case in the major urban areas discussed above, Mr. Tesh's assignment of value to the land frequently bears little relationship to the data in his own study and is therefore unreliable, as shown in the examples below.

(i) Example No. 1 – Big Horn County, Montana

BNSF Exhibit F.III-1-1, Appendix A, lists 35 transactions as "Relevant Land Sales" for agricultural land use in 1996 and 1999 in Big Horn County, Montana. The range of prices for these sales was $40 to $1,315 per acre. The simple average sale price was $305 per acre, and the average sale price weighted by acreage was $263 per acre.

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21 See Otter Tail Rebuttal electronic workpaper "Overland Railroad Parcel Lengths.xls."
22 Id.

Mr. Tesh created 251 agricultural land use parcels for the OTRR right-of-way in Big Horn County and assigns land values that range from $100 to $1,550 per acre for these parcels. These assigned values exceed the average observed value of $305 per acre for 152 of the 251 parcels. Further, Mr. Tesh's assigned values exceed the weighted average of the observed values for 174 of the 251 parcels. In aggregate, BNSF's assigned value was 188 percent of the value implied by assigning the average sale price of the relevant land sales in his own study to his parcels, and 218 percent of the value implied by assigning the weighted average sale price of the observed relevant land sales.

(ii) Example No. 2 – Yellowstone County, Montana

The pattern continues in Yellowstone County, Montana, where, BNSF Exhibit III.F-1-1, Appendix A, contains 37 transactions as "Relevant Land Sales" for agricultural land use in 1996 and 1999. The range of prices for these sales was $100 to $4,500 per acre. The simple average sale price was $1,401 per acre, and the average sale price weighted by acreage was $337 per acre.

Mr. Tesh created 54 agricultural land use parcels for the OTRR right-of-way in Yellowstone County. Mr. Tesh assigned land values for these parcels that range from $500 to $3,100 per acre. The assigned values exceed the average observed value of $1,401 per acre for 38 of the 54 parcels. Further, the assigned values exceed the weighted average of the observed values of $337 per acre for each and every one of the 54 parcels in the county. In aggregate, the assigned values are 130 percent of the value implied by assigning the simple average sale price of the relevant land sales in BNSF's own study, and an incredible 541 percent of the value implied by assigning the weighted average sale price of the observed relevant land sales.

(iii) Example No. 3 – Campbell County, Wyoming

BNSF does not confine its upward bias in valuation to agricultural land. BNSF Exhibit III.F-1-1, Appendix A, lists 19 transactions as "Relevant Land Sales" for commercial land use in 1997 and 1998 in Campbell County. The range of prices for these sales was $0.23 to $8.45 per square foot. The average sale price was $2.93 square foot, and the weighted average price was $1.47.

Mr. Tesh created 22 commercial land use parcels for the OTRR right-of-way in Campbell County and assigned a value that exceeds the average observed value of $2.93 per square foot for 20 of the 22 parcels. Further, Mr. Tesh assigned values that exceed the weighted average of the observed values of $1.47 per square foot for 21 of the 22 parcels. In aggregate, BNSF's assigned value is 171 percent of the value implied by assigning the average sale price of the relevant land sales in its own study to its parcels, and 341 percent of the value implied by assigning the weighted average sale price of the observed relevant land sales.

(iv) Example No. 4 – Campbell County, Wyoming

BNSF Exhibit III.F-1-1, Appendix A, lists three transactions as "Relevant Land Sales" for industrial land use in 1997 and 1998 in Campbell County. The range of prices for these sales was $0.48 to $1.13 per square foot. The average sale price was $0.80 square foot, and the weighted average price was $0.71 per square foot.

Mr. Tesh created 54 industrial land use parcels for the OTRR right-of-way in Campbell County. Mr. Tesh assigned a value that exceeds the average observed value of $0.80 per square foot to 41 of the 54 parcels and assigned values that exceed the weighted average of the observed values of $0.71 per square foot to 42 of the 54 parcels. In aggregate, Mr. Tesh's assigned value is 133 percent of the value implied by assigning the average sale price of the relevant land sales in BNSF's own study ,

and 149 percent of the value implied by assigning the weighted average sale price of the observed relevant land sales.

(v) Example No. 5 – Gillette, Wyoming

Finally, BNSF Exhibit III.F-1-1, Appendix A, lists three transactions as "Relevant Land Sales" for industrial land use in 1997 and 1998 in Gillette, Wyoming. The range of prices for these sales was $0.48 to $1.13 per square foot. The average sale price was $0.80 per square foot, and the weighted average sale price was $0.71 per square foot.

Mr. Tesh created eight industrial land use parcels for the OTRR right-of-way in Gillette. Mr. Tesh assigned values that range from $1.50 to $2.00 per square foot. The assigned value exceeds the *maximum* value observed of $1.13 per square foot for *all* eight parcels. In fact, Mr. Tesh's assigned value for industrial parcels in Gillette of $1.4 million is approximately 142 percent of the price implied by assigning the maximum observed price in the relevant land sales, 214 percent of the implied average price, and 241 percent of the implied weighted average price. Once again, while averages can be deceiving, as BNSF often notes in its testimony, BNSF's evidence is not credible when *every* assigned value is significantly above the highest observed relevant land sale in the directly comparable region.

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In its Reply Testimony, BNSF criticizes Otter Tail's methods of land valuation while maintaining that its methodology is "consistent with appraisal industry standards."[23] However, upon comparing the valuations applied by BNSF's land witness with the data in his own land study, it is difficult to understand why BNSF even performed a comparable land study in the first place.

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[23] See BNSF Reply at III.F-8.

While Otter Tail notes that the comparability of all land parcels is not that same, and that averages can be deceiving, the consistency and magnitude of Mr. Tesh's upward divergence from the data of his own study is simply not rational. Further, as BNSF failed to respond to Otter Tail's request for workpapers supporting Mr. Tesh's assignment of land values to the OTRR, or relating his assigned values to the observed comparable land sales, the STB should reject BNSF's land values for the Donkey Creek to Moran Junction portion of the OTRR. On Rebuttal, Otter Tail continues to rely on its land valuation for this portion of the OTRR.

iii. Orin Line

BNSF rejects the use of Otter Tail's land value for the OTRR right-of-way between Converse Yard and Donkey Creek Yard, stating that this segment of the OTRR, located in the Powder River Basin ("PRB"), is a portion of the Orin Line, which BNSF acquired in the mid-1970's.[24] Further, BNSF indicates that, when acquiring the Orin Line, BNSF was required to pay a premium to acquire the land associated with the Orin Line and therefore the OTRR is required to use BNSF's actual purchase price for the line. Mr. Tesh states that BNSF paid $2.9 million for 2,487 acres of land associated with the Orin Line land, based on the STB's decision in WTU.[25] BNSF indexes this amount from 1978 to 2001 land values using an index developed from U.S. Department of Agriculture statistics for agricultural land values in Wyoming and concludes that the value of the land BNSF purchased for the Orin Line in the mid-1970's is now valued at $5.7 million. BNSF then indicates that the OTRR segment from Converse to Donkey Creek represents 75 percent of the Orin

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24 See BNSF Reply at III.F-36 to III.F-37.
25 1 S.T.B. at 703, n 144.

Line and therefore uses 75 percent of the $5,682,159 for the OTRR land value for this segment, or $4.2 million.[26]

BNSF's approach is incorrect for three reasons. First, it is improper to use an index for a *twenty-three* year period (1978 to 2001) when current comparable land prices are available.[27] For example, in McCarty, the STB rejected complainants' use of a land index that covered a 40 year period, stating: "The longer time frame reflects changes in land values that occurred as long as a quarter of a century before the construction of the FRR would occur and is thus inappropriate for computing a more current inflation factor."[28] Further, BNSF even admonishes Otter Tail for indexing of land values for a two year period from the comparable land sale transaction date to the beginning of the SARR start date by stating:

> "... real estate is not a fungible asset. Land costs for specific properties cannot be indexed the way cost can be indexed for track and ties and other materials, there is no way to trend a real estate number backwards without actually valuing the properties involved as of the earlier date..."[29]

In spite of this, BNSF does not hesitate to index the Orin Line land values for twenty-three years.

More recently, the STB affirmed the impropriety of using indexed costs when actual prices are available in TMPA, where, in regard to fuel prices for development of variable costs, the STB indicated that it was preferable to use actual 2001 prices that BNSF paid for fuel in the second, third

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26 See BNSF Reply at III.F-37.

27 The transaction dates for comparable land sales included in Otter Tail's Opening Evidence for the Orin Line segments range from April 1998 to December 2000.

28 2 S.T.B. at 523.

29 See BNSF Reply at III.F-16.

and fourth quarters of 2001 rather than to use year 2000 annual fuel prices indexed to each quarter's price levels.[30]

Even BNSF's own evidence demonstrates that use of the indexed Orin Line purchase price is unrealistic. As stated previously, Mr. Tesh actually performed a current valuation of the land that comprises the OTRR right-of-way from Converse to Donkey Creek. This valuation produces a land value of $41,961 or only one percent of the BNSF indexed Orin Line land value of $4.2 million.[31]

Second, even if it were permissible under the STB's standards to use twenty-three year old land values in place of current land values, BNSF's indexed valuation erroneously presumes that the OTRR would acquire all of the 2,487 acres BNSF purchased in the mid-1970's. On the contrary, Otter Tail on Opening proposed, and BNSF accepted, the use of a 100-foot right-of-way for the OTRR.[32] The OTRR, therefore acquires only 316.9 acres of land between Converse and Donkey Creek (net of easement acres). Accepting BNSF's methodology forces the OTRR to purchase 75 percent of the Orin Line or the equivalent of 1,940 acres of land, which exceeds those required by the OTRR by 512 percent.

The final flaw in BNSF's valuation of Orin Line land is that, rather than producing the documents supporting the Orin Line land value and demonstrating what was included in the land sales transactions, BNSF merely adopted the 1978 price BNSF paid for the Orin Line land from the

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30 See TMPA at 58.

31 See BNSF Reply electronic workpaper "OTRR Land Conclusions.xls." Three factors cause the vast different in Mr. Tesh's appraised value of the OTRR right-of-way between Converse and Donkey Creek and the BNSF indexed value. First, approximately 80% of the OTRR right-of-way between these two points was acquired by BNSF through easements, which is reflected in Mr. Tesh's appraised value. However, the balance of the Orin Line may not have been acquired via easements. Second, Mr. Tesh's appraised value is for a 100-foot right-of-way, whereas the BNSF purchased a larger right-of-way. Third, as discussed above, indexing 23-year old land values is not reflective of current values.

32 See BNSF Reply at III.F-6.

STB's decision in WTU.[33] BNSF is in the sole possession of these documents and could have provided this information to Otter Tail but chose not to. For all the above reasons, Otter Tail's valuation of the Orin Line land is clearly the best evidence of record.

iv. Smaller Towns Along the OTRR

BNSF claims that Otter Tail also has undervalued the land in the smaller towns along the OTRR right-of-way. This includes towns such as Gillette and Sheridan, Wyoming; Ballantine and Custer, Montana; and Cassleton and Jamestown, North Dakota, to name a few. In the aggregate, BNSF has increased Otter Tail's proposed land value for this category from $4.5 million to $15.8 million. Otter Tail believes that BNSF's more than threefold increase in land value is excessive for two reasons. First, the primary method of valuation employed by BNSF's witness in these towns is to "eyeball" Otter Tail valuations and to simply multiply them by an arbitrary factor which BNSF claims is representative of the relationship between its land values and Otter Tail's values in other areas of the OTRR right-of-way. As previously shown for those areas where BNSF's land witness actually inspected the land along the OTRR right-of way, his proposed valuation does not correspond with his observed land values.

BNSF notes that it increased the Otter Tail land values in small towns because Mr. Tesh "did not have the time to inspect thoroughly all the property that would need to be acquired for the OTRR."[34] Elaborating further upon the details of the process, BNSF states that Mr. Tesh carefully adjusted Otter Tail's valuations "to reflect his experience and market research in a sample of those towns along the ROW..."[35] However, upon closer inspection of BNSF's electronic workpapers, it

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33 See BNSF Reply at III.F-36.
34 See BNSF Reply at III.F-31.
35 See BNSF Reply at III.F-34 to III.F-35.

becomes clear that Mr. Tesh simply took Otter Tail's valuations and multiplied them by 3.5 times across the board (and by 6 times, in the case of Jamestown, North Dakota).[36] In general, this approach of increasing a valuation number by arbitrary factors is vastly inferior to Otter Tail's approach, which employed a thorough and diligent approach, including on-site inspections. Furthermore, BNSF's approach is similar to that recently rejected by the STB.[37]

In an attempt to justify BNSF's claims that Otter Tail's small town land values are understated, BNSF points out that Otter Tail considers the entire town of Wheatland, ND as being agricultural. BNSF states that it identified residential sales in the vicinity for $0.30 per square foot or $13,068 per acre while Otter Tail values the property at only $271 per acre. What BNSF fails to indicate is that Wheatland is an agricultural community and has a population of only 60 people.[38] Moreover, a review of BNSF's "Relevant Land Sales" near Wheatland does not reveal any residential sales with a value of $0.30 per square foot or $13,068 per acre. Further, BNSF omits any evidence as to whether this residential transaction, missing from the Relevant Land Sales, is improved property and, if so, the value of the improvements.[39]

In areas where Mr. Tesh did complete full inspections, he continued to fail to actually tie his valuation to the results of those inspections, as well established above. For example, in the Donkey Creek to Moran Junction section above, there are numerous examples where BNSF's assigned land

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36 See BNSF Reply electronic workpaper "OTRR Land Conclusions.xls."

37 See Duke-NS at 87-88; CP&L at 74-76; Duke-CSXT at 73-74.

38 See www.ndsu.nodak.edu/sdc/data/census2000.htm#cityplace, 1990 - 2000 Population Trends for North Dakota Cities with Percent Change.

39 BNSF fails to indicate if any of their Relevant Land Sales have improvements. Otter Tail requested BNSF to supply workpapers related to the Relevant Land Sale identifying the existence and value of any improvements and the location of the comparable land sale in relation to the OTRR right-of-way. BNSF's only response to Otter Tail's workpaper request was that Mr. Tesh was unavailable and it would respond when Mr. Tesh became available. Despite the five-month extension in the schedule, BNSF has yet to provide any additional information.

values bear no relationship to its observed land values. As a result, acceptance of BNSF's arbitrary increase by 3.5 times for the OTRR right-of-way in small towns and 6.0 times in Jamestown, ND is not supported. On Rebuttal, Otter Tail continues to use its Opening values for the land values in small towns.

b. Yard Acreage and Property Value

Based on the testimony of its engineering witness, BNSF has more than doubled the acreage required for OTRR yards and facilities from 271.0 acres to 608.6 acres, and has increased value assigned to this land from $3.0 million to $11.6 million.[40] The primary reasons for these dramatic upward revisions are: 1) the addition of track miles at the Donkey Creek and Glendive Yards; 2) the unexplained and unsupported inclusion of additional land in Donkey Creek and Glendive Yards; and 3) the use of overstated values per acre for land in Donkey Creek, Glendive and Fargo, which is not supported by BNSF's own land studies.

Otter Tail rejects the addition of track miles at the Donkey Creek and Glendive yards, with the exception of a slight increase in the length of the "wye" track in these two yards. Otter Tail does increase the yard acres in Fargo to allow for the placement of tracks to perform I&I switching services for a limited number of non-coal overhead trains. This results in an increase of acres in the Fargo Yard from 8.4 to 29.7 acres. The rejection of BNSF's additional yard tracks can be found in Section III-B, supra.

i. Donkey Creek and Glendive Yards

BNSF contends that it will be necessary to increase the acreage allotted for the Donkey Creek Yard from the 108.8 acres proposed by Otter Tail to 245.1 acres. Furthermore, BNSF proposes to

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[40] See BNSF Reply at III.F-6 to III.F-7 and III.F-37 to III.F-38.

increase the value of the land at Donkey Creek Yard from $6,531 to $73,530. At Glendive Yard, BNSF proposes to increase the required acreage from 114.4 to 319.8, and the total value of the land from $2.7 million to $9.6 million. These proposals simply are not supported by BNSF's evidence.

(a) BNSF Yard Acres are Nonsensical and Unsupported

First, as mentioned above, Otter Tail rejects the addition of track at the Donkey Creek Yard and the Glendive Yard, as well as the addition of any acreage associated with this trackage. In both cases, upon close inspection, the yard diagrams presented in evidence by BNSF are nearly identical in physical dimension to those of Otter Tail, with the exception that BNSF's diagrams contain the areas with the additional miles of track.[41] Using BNSF's evidence, one should simply be able to subtract out the areas with BNSF's additional miles of track to arrive at comparable yard acres. However, this is not possible.

BNSF's proposals do not even pass the most rudimentary common sense tests. It is clear that the addition of 2.9 miles of track to Otter Tail's 24.62 miles at Donkey Creek would not double the size of the yard, i.e., an increase from 108.8 acres to 245.1 acres. Furthermore, the addition of approximately 13 miles of track to Otter Tail's 27.04 miles at Glendive would not increase the size of the yard by nearly three times, from 114.4 acres to 319.8 acres, as BNSF proposes. Additionally, Otter Tail notes that its current acreage proposals are fully documented and supported by transparent calculations that are included as evidence in the record,[42] while BNSF's acreage proposals are simply text on a diagram, unsupported by any documentation. Otter Tail requested BNSF to provide workpapers underlying the calculation of acres for the Donkey Creek and Glendive Yards. In

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41 See BNSF Reply workpapers BNSF.RP.WP.III.F-0128 and BNSF.RP.WP.III.F-0170

42 See Otter Tail Rebuttal electronic workpaper "OTRR_bldgs Rebuttal.xls."

response, BNSF provided an electronic file titled "Yard_Acreage.dgn" which can only be read by an arcane software package which BNSF did not provide. As such, BNSF's calculations of yard acres for Donkey Creek and Glendive are not supported in this record.

(b) Yard Parcel Valuation

BNSF proposes a five fold increase in the average cost per acre of land at the Donkey Creek Yard from $60 per acre to $300 per acre. The supposed reason for this increase is a land study completed by BNSF's land witness. However, Otter Tail notes that this valuation does not seem to correlate with the results of Mr. Tesh's own study. BNSF Exhibit III.F-1-1, Appendix A, lists 21 transactions as "Relevant Land Sales" for agricultural land use between 1996 and 1999 in Campbell County, Wyoming, where Donkey Creek Yard is located. The absolute highest sale was completed at $313 per acre, and the next highest sale was completed at only $194 per acre. The average price paid for agricultural land in the county over that period was $140 per acre and the weighted average was $128 per acre. Given these statistics, a value of $300 per acre – virtually the same as the highest observed in the area and over two times the average for the area - is clearly excessive.

In Glendive, BNSF proposes an increase in the cost per acre of land in the yard from the $23,837 proposed by Otter Tail to $30,000, a 26 percent increase.[43] Once again, in contrast to Otter Tail's calculation, which is supported by documentation in evidence,[44] BNSF's $30,000 valuation is an undocumented entry in a spreadsheet. Given this lack of supporting evidence, Otter Tail believes that BNSF's increase should be rejected.

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[43] See BNSF Reply at III.F-37 to III.F-38.

[44] See Otter Tail Opening electronic workpaper "OTRR_Land_Comparables.xls," worksheet "Land comparables," Lines 186-188 and Opening Workpaper Vol. 5, pp. 3567 to 3569.

ii. Fargo Yard

As stated previously, Otter Tail increases the track miles at the Fargo yard to accommodate I&I switching activities, resulting in an increase in yard acres from 8.4 to 29.7 acres. Otter Tail does not accept BNSF's proposed increase in the cost of the commercial-use land to be acquired by the OTRR for the Fargo Yard to $4.95 per square foot. Once again, BNSF Exhibit III.F-1-1, Appendix A, lists 61 transactions as "Relevant Land Sales" for commercial-use land between 1998 and 2001 in Fargo, North Dakota. The average price paid for commercial land in the county over that period was $3.33 per square foot and the weighted average was $2.66 per square foot. Given these statistics, a value of $4.95 per square foot, or 150 percent of the average and 186 percent of the weighted average for the city, also seems clearly excessive.

c. Microwave Tower Acreage and Property Value

BNSF contends that it will be necessary to increase the acreage allotted for microwave towers along the OTRR right-of-way from 58.5 acres to 87.0 acres, thus increasing associated cost of the land from $23,890 to $400,000. The primary reasons for this increase appear to be: 1) an excessive increase in the number of microwave towers from 45 to 58; 2) an unnecessary increase in the average parcel size from 1.3 to 1.5 acres; 3) inefficient and unnecessary location of microwave towers in expensive land use areas; and 4) an overvaluation of land for microwave towers relative to BNSF's own land studies.

i. Parcel Size

BNSF proposes an across-the-board increase in the average size of microwave parcels from 1.3 to 1.5 acres. This arbitrary increase is unnecessary and inconsistent with BNSF's own microwave tower infrastructure in Wyoming, Montana and North Dakota. Review of BNSF documents

provided in discovery demonstrates that

While Otter Tail recognizes that taller towers generally warrant larger parcels, this was taken into account in its Opening evidence. Furthermore, as BNSF's own microwave tower data shows, the use of an across-the-board 1.5-acre site for all towers is not warranted.

ii. Tower Location

Finally, BNSF has proposed a greater than 1,000 percent increase in the average price per acre used by Otter Tail for land for microwave towers, i.e., from $408 to $4,759 per acre. This increase appears to be largely the result of BNSF's inefficient placement of many of the microwave towers in urban and semi-urban areas. Table III-F-9, below, shows several of the proposed microwave tower locations and the unit costs per acre.

[45] See Otter Tail Rebuttal Workpaper Vol. 2, pp. 6110 to 6114.

Table III-F-9
Inefficient Placement of Microwave Towers by BNSF

	Microwave Tower Location (1)	Unit Cost Per Acre (2)	Acres (3)	Total Cost (4)
1.	East Campbell	$34,020	1.5	$51,030
2.	Miles City	10,663	1.5	15,900
3.	Terry	15,152	1.5	22,730
4.	Glendive	23,837	1.5	35,760
5.	Dickinson	14,026	1.5	21,040
6.	Mandan	62,073	1.5	93,110
7.	Moorhead OTV	76,230	1.5	114,350

Otter Tail recognizes that BNSF often locates the OTRR's microwave towers based on the current location of its own microwave towers. However, as the STB recognized in Nevada Power, "there is no reason why a carrier entering the industry... would need to locate a yard in an area of very high land costs when there is lower-cost land nearby. A prudent business would do just the opposite."[46] The same logic applies to microwave towers. With a few notable exceptions, the right-of-way along the OTRR is largely open and agricultural land. As such, the consistent placement of microwave towers on expensive land is unnecessary and is an easily avoidable expense. This is yet another instance of BNSF's deliberate effort to inflate land expenses for the OTRR.

iii. Valuation of Tower Parcels

Assuming for the moment that placement of microwave towers in cities and towns was reasonable, the valuation used by BNSF is not supported. As with other assigned land values, the

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[46] See Nevada Power at 306.

excessive cost proposed by BNSF frequently bears little relationship to the observations gathered in its own land studies, a pattern in this case. For example, BNSF proposes to place a microwave tower at milepost 200.24 in the Jamestown District. This is in Mandan, North Dakota, one of the few major urban areas in the state. BNSF proposes to place the tower on a segment of land that its land expert, Mr. Tesh, designates as single-family use on one side of the track and industrial use on the other side of the track.

Mr. Tesh values the single-family use land at $1.60 per square foot and the industrial use land at $1.25 per square foot. BNSF Exhibit III.F 1-1, Appendix A, lists 24 transactions as "Relevant Land Sales" for single-family land use between 1997 and 1999 in Mandan. However, Mr. Tesh's assignment of $1.60 per square foot for the microwave tower exceeds all but four of the transactions observed over this period.

Further, BNSF Exhibit III.F 1-1, Appendix A, lists one transaction as a "Relevant Land Sales" for industrial use in Mandan, which was completed in 1998 at $0.21 per square foot. Despite this observation, Mr. Tesh has assigned a value of $1.25 per square foot to the land for the microwave tower, or nearly six times his observed value, without explanation.

d. Easements

Otter Tail accounted sufficiently for easements on Opening,[47] and its proposals were accepted on Reply.[48] On Rebuttal, Otter Tail continues to rely on the easement fees of $57,910.14, or $73.11 per acre, used on Opening.

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47 See Otter Tail Opening at III-F-9.

48 BNSF includes both the value of easements *and* assumes these acres of land will be purchased, thereby overstating the land requirements and land value of the OTRR. See BNSF Reply electronic workpaper "OTRR Land Conclusions.xls", worksheet "Summary" where the BNSF total land value for the OTRR includes both Otter Tail's easement value and all the acres needed for the OTRR as identified by BNSF.

e. **Summary**

In summary, Otter Tail continues to rely on the land acres and values developed in its Opening evidence with the following exceptions. First, Otter Tail accepts BNSF's parceling in the urban areas of Mandan, Bismark, Fargo and Moorhead. Second, Otter Tail calculates a simple average land value per unit for each land use type in each of these urban areas using BNSF's Relevant Land Sales data and applies this value per unit to BNSF's parcels in each of the areas. This procedure increases the land value in these urban areas by a total of $9.1 million over the value in Otter Tail's Opening evidence.

Finally, Otter Tail increases the number of acres in the Fargo Yard by 21.3 acres in order to accommodate the addition of tracks for I&I switching at Fargo. In addition, Otter Tail increases the price per square foot for land in the Fargo Yard from $0.20 to $3.33. This increase accounts for the average price for commercial property in Fargo observed in BNSF's Relevant Land Sales data. This increase in acres and average price per acre results in a total land value of $4.3 million for the Fargo Yard, or $4.2 million more than that used on Opening. Also, acreage for the Terry Yard was inadvertently omitted from Otter Tail's Opening calculations for the OTRR and is included on Rebuttal. This results in the addition of 1.8 acres and $19,225 in land value. Together, these changes result in total yard acreage of 294.2 and total yard land value of $7.2 million.

On Rebuttal, Otter Tail determines that the OTRR requires 14,905 acres of land at a total cost of $46.6 million.

2. **Roadbed Preparation**

Roadbed preparation costs for the OTRR include costs for clearing and grubbing, earthwork, lateral drainage, culverts, and many other smaller items. Roadbed preparation costs were discussed

by Otter Tail at pages III-F-10 through 31 of its Opening Narrative and by BNSF atpages III.F-46 through 125 of its Reply Narrative.

On Opening, Otter Tail included $632.5 million for roadbed preparation (including $26.9 million for culverts). On Reply, BNSF included $1,513.5 million (including $27.7 million for culverts), nearly two and a half times Otter Tail's amount. This enormous difference in roadbed preparation investment accounts for over half of the total difference in OTRR investment costs when combined with BNSF's additives for mobilization, engineering and contingencies.[49] As discussed below in this Section III-F-2, BNSF has significantly overstated the earthwork quantities by misusing the ICC Engineering Report data with respect to earthwork for yards and by developing quantities for three coal mine branches based on a completely unsupported analysis using topographical maps and computer programs that it failed to provide to Otter Tail. BNSF has also significantly overstated the unit costs for earthwork through the selection of costlier equipment and the addition of unnecessary tasks associated with earthmoving. BNSF has further included costs for unnecessary tasks (such as fine grading and the addition of costs for winter equipment, snow removal and construction lighting) or tasks for which the costs are covered elsewhere (such as stripping, foundation conditioning and undercutting). Virtually none of BNSF's presentation is based on actual BNSF projects or BNSF practices, but rather on references to specifications and mere assertions that are either not applicable to the OTRR or are unnecessary. Otter Tail's rebuttal narrative addresses

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[49] $881.0 million + $30.8 million (3.5% mobilization) + $92.5 million (10.5% for the portion of BNSF's engineering costs on a percentage basis) + $88.1 million (10% contingencies) = $1,092.4 million of the total difference of $2,061.2 million.

all these issues and conclusively demonstrates that BNSF's roadbed preparation costs are grossly overstated.[50]

Table III-F-10 below compares Otter Tail's Opening, BNSF's Reply and Otter Tail's Rebuttal investment costs for roadbed preparation.

[50] In fact, BNSF's roadbed preparation costs alone, without any additives, equal $0.9 million per track mile ($1,513.5 million divided by BNSF's 1,767.6 track miles). This is more than twice the $0.4 million per track mile for roadbed preparation included in TMPA for the stand-alone railroad. ($932 million (TMPA at 116) divided by the sum of 2,243.7 main line track miles (TMPA at 68) and 164.23 other track miles (TMPA at 70).)

Table III-F-10
Comparison of OTRR Estimated Roadbed Preparation
Investment - Otter Tail Opening, BNSF Reply and Otter Tail Rebuttal - 1Q02
($ In Millions)

Item	Otter Tail Opening	BNSF Reply	Otter Tail Rebuttal	BNSF Reply Over/ (Under) Otter Tail Rebuttal
(1)	(2)	(3)	(4)	(5)
1. Clearing	$1.23	$1.32	$1.23	$0.09
2. Grubbing	0.34	0.35	0.34	0.01
3. Stripping	0.00	4.56	0.00	4.56
4. Earthwork				
a. Line Segments	563.39	1,175.63	586.01	589.62
b. Yards	5.18	23.93	5.51	18.42
5. Winter Equipment, Snow Removal and Construction Lighting	0.00	97.16	0.00	97.16
6. Foundation Conditioning	0.00	39.90	0.00	39.90
7. Fine Grading	0.00	22.34	0.00	22.34
8. Culverts	26.86	27.73	27.03	0.70
9. Lateral Drainage	0.90	1.45	0.90	0.55
10. Retaining Walls	0.08	15.37	5.90	9.47
11. Rip Rap	11.51	14.91	11.50	3.41
12. Relocation of Utilities	1.02	1.03	1.02	0.01
13. Placing Topsoil/Seeding	2.98	6.59	2.97	3.62
14. Water for Compaction	7.47	16.30	7.49	8.81
15. Road Surfacing for Detours	4.93	23.76	4.91	18.85
16. Environmental Compliance	1.40	1.41	1.40	0.01
17. Land for Waste Quantities	0.35	0.64	0.35	0.29
18. Yard Paving and Drainage	4.87	35.31	4.87	30.44
19. Site Access	0.00	3.83	0.00	3.83
20. Total	$632.52	$1,513.52	$661.43	$852.09

Roadbed preparation costs are impacted by the specifications used for the construction of the OTRR. In its Reply, BNSF took exception to several of Otter Tail's specifications for the OTRR. Before discussing the roadbed preparation costs for the OTRR shown in Table III-F-10 above, Otter Tail will first address the specification issues presented by BNSF.

Side Slopes

On Opening, Otter Tail used side slopes of 1.5:1, consistent with several previous STB decisions.[51] The side slope is one of the variables used in the process to calculate the grading quantities for the line segments of the OTRR for which there are ICC Engineering Report quantities.[52]

On Reply, at page III.F-56, BNSF accepted the 1.5:1 side slope specification. However, BNSF states that, as a result of accepting the 1.5:1 side slopes for the OTRR, additional costs for supplemental stabilization were included in BNSF's maintenance costs. These costs are unnecessary.

First, for the section of the OTRR between Converse Yard and Donkey Creek, including the line from Reno Junction to Jacobs Junction, and the Eagle Butte Branch, both parties relied on BNSF's actual earthwork quantities, which reflect the actual side slopes in place today. Second, the ICC Engineering Report earthwork quantities were developed by measuring the quantities in existence at the time of the valuation. To do this, the personnel responsible for estimating these earthwork quantities took frequent measurements of the roadbed width, height, depth and side slope. Using these measurements, they calculated the underlying amounts of earthwork. Stated differently, these personnel measured what was actually there regardless of the underlying specifications. This means that, if the side slope in a particular area was in excess of 1.5:1, then that was what was used to make the earthwork quantity calculations for that area. In other words, both BNSF and Otter Tail have

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51 See TMPA at 116 (n. 183); FMC at 111; WPL at 81; Duke-NS at 90.

52 This process was explained in Otter Tail Opening at III-F-12 to 16 and contained in Otter Tail Opening Errata electronic workpaper "OTRR Grading.xls." BNSF accepted Otter Tail's process. (See BNSF Reply at III.F-67 and BNSF Reply Errata electronic workpaper "IIIF2 OTRR GRADING_Errata.xls").

assumed that the original earthwork quantities are based on a 1.5:1 slope when in fact, the original side slope may have actually been less, i.e., 1.25:1 or more, i.e., 2:1 or even 2.5:1,[53] whatever was necessary for a stable slope. Therefore, BNSF's additional costs for slope stabilization based on the use of a 1.5:1 side slope are unnecessary.

Access Roads

On Opening, Otter Tail did not include a specific discussion regarding access roads for the OTRR. On Reply, at page III.F-56, BNSF states that Otter Tail did not include access roads for the OTRR. BNSF cites several reasons as to why access roads are necessary.[54] BNSF then goes on to state that it does not maintain an inventory of existing access roads so its construction experts identified locations where they deemed access roads were necessary.

BNSF's access road discussion, and inclusion of costs, has no merit. BNSF has not provided any evidence demonstrating that actual access roads were constructed, so BNSF's inclusion of costs for access roads has no relationship to the access roads that currently exist. Furthermore, to the extent access roads were built when the lines of the OTRR were constructed, the quantities associated with these roads are already included in the earthwork quantities recorded on the ICC Engineering Reports and in the Orin Line and Eagle Butte Branch construction documents. In other words, the source data used by both Otter Tail and BNSF to develop grading quantities reflects the quantities associated with access roads included at the time of construction. Access to construction

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53 This kind of detail, i.e., the actual side slope, is not recorded in the ICC Engineering Reports.

54 One of the reasons cited by BNSF is the ability of contractors and vendors to be able to access the OTRR right-of-way. As discussed below, Otter Tail included the existing access roads (as reflected in the earthwork quantities). However, contractors and vendors would also be able to access the OTRR using cross roads and parallel roads and, in rare instances, OTRR will, as most railroads do, provide (or gain) access to its property through an adjacent landowner's property with their permission.

locations will also be made by using the OTRR's cleared right-of-way. Based on these same reasons, the inclusion of additional quantities and costs for access roads has been rejected by the STB in several recent decisions.[55]

Otter Tail's opening evidence procedures conform to prior STB decisions and Otter Tail continues to follow them in rebuttal. All of BNSF's adjustments and costs related to access roads are unnecessary and should be rejected.

Roadbed Width

On Opening, Otter Tail used a 28-foot roadbed width (for single track) for the OTRR high density line segments between Converse Yard, WY and Reno Junction, WY, Campbell, WY and Donkey Creek, WY and between Glendive, MT and Fargo, ND as well as the Reno and Eagle Butte coal mine branches. For the remaining line segments of the OTRR, Otter Tail used a 24-foot roadbed width.[56]

On Reply, at page III.F-68, BNSF accepted Otter Tail's 28-foot roadbed width for the line segments identified above but took exception to Otter Tail's 24-foot roadbed width for the Reno Junction to Donkey Creek line segment. BNSF contends that the OTRR needs to build this segment with a 28-foot roadbed width because the current roadbed width is 28 feet. BNSF further contends that this segment needs to be 28-feet because WRPI, which the OTRR is modeled after, was constructed with a 28-foot roadbed width.

BNSF's arguments are incorrect and unsupportable for at least two reasons. First, BNSF accepted a 24-foot roadbed width for the Donkey Creek to Glendive section of the OTRR. In 2021,

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55 See TMPA at 117; Duke-NS at 90-91; CP&L at 78; Duke-CSXT at 76.
56 See Otter Tail Opening at III-F-15 to III-F-16.

this section will handle a maximum of 59.8 million net tons ("MNT") between Nichols, MT and Terry, MT.[57] This is more traffic than will traverse the heaviest segment of the Reno Junction to Donkey Creek section, i.e., a maximum of 52.0 MNT in 2021 between Caballo Mine and Donkey Creek Jct.[58] Since BNSF agrees that a 24-foot roadbed is sufficient to handle the maximum tonnage level between Donkey Creek and Glendive, there should not be any argument as to whether it is sufficient for segments with lower volumes.

Second, BNSF's argument regarding the width of the WRPI roadbed is irrelevant. WRPI (now part of UP) was constructed based on the expectation that it would handle significantly higher tonnage volumes in its future and that expectation has come true. In 2002, UP shipped 171 million net tons from the PRB,[59] all of it traveling over the former WRPI trackage. This is a much higher volume than any segment of the OTRR,[60] especially those segments with a 24-foot roadbed.

Otter Tail continues to use the roadbed widths it presented on Opening.

Right-of-Way Width

On Opening, Otter Tail used a 100-foot right-of-way width in rural areas and a 75-foot right-of-way width in urban areas.[61] On Reply, at page III.F-58, BNSF stated that it accepted Otter Tail's right-of-way widths.[62]

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57 See Otter Tail Opening electronic workpaper "OTRR Density.xls", sheet "Densities-Peak Net."

58 Id.

59 See Otter Tail Rebuttal Workpaper Vol. 2, p. 6147.

60 In 2021, the peak year of the OTRR, the heaviest-density line segment (between N. Rochelle and Reno Junction) will handle 97.1 million net tons/mile. See Otter Tail Opening electronic workpaper "OTRR Density.xls," sheet "Densities-Peak Net."

61 See Otter Tail Opening at III-F-5.

62 BNSF claims that Otter Tail's restricted right-of-way widths limit the type of equipment that can be used for earthwork activities. In BNSF's earthwork section, the only issue that arises regarding right-of-way width is the turning radius of the hauler used by Otter Tail. As discussed in Section III-F-2 infra, this can be solved simply, if necessary, by having the hauler execute a three-point turn.

a. Clearing, Grubbing, Stripping, Foundation Conditioning and Undercutting

i. Clearing and Grubbing

On Opening, Otter Tail calculated the acres of clearing and grubbing for the OTRR based on information contained in the ICC Engineering Reports and BNSF construction documents for the Orin Line and the Eagle Butte Branch and included $1.57 million in investment.[63] Otter Tail utilized two different costs for clearing and one cost for grubbing, all taken from the 2002 Means Handbook.[64] For the number of acres that were grubbed, Otter Tail assumed that trees were cleared and used a cost per acre for cutting and chipping trees up to 6" in diameter.[65] Otter Tail included grubbing costs for the same acres. For those acres that were cleared and no grubbing was required, Otter Tail utilized the cost per acre for clearing with dozer and brush rake, medium brush to 4" diameter.

On Reply, BNSF included $1.67 million for clearing and grubbing,[66] a difference of $0.10 million. BNSF accepts Otter Tail's methodology for quantities but there are differences in quantities due to BNSF's overstated main track miles and yard size.[67]

BNSF also takes issue with some of Otter Tail's unit costs. BNSF accepts Otter Tail's unit costs for the acres that need to be both cleared and grubbed but objects to Otter Tail's unit cost for

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63 See Otter Tail Opening at III-F-10 to 12, Opening Exhibit III-F-6 and Opening Errata electronic workpaper "OTRR Grading.xls."

64 As discussed in Otter Tail Opening at III-F-11, footnote 21, the R. S. Means Company, Inc. publishes several cost estimating handbooks, which Otter Tail has collectively referred to as the "Means Handbook." The relevant pages used on Opening were included in Otter Tail Opening Workpaper Vol. 6 under Section III-F.

65 As discussed in Otter Tail Opening at III-F-11, footnote 22, the unit costs in the Means Handbook are national averages and have been adjusted by the Means Handbook city cost indexes, referred to as the "location factors."

66 See BNSF Reply at III.F-46.

67 BNSF also complained, at III.F-59 to III.F-61 of its Reply, that Otter Tail did not properly include clearing and grubbing amounts for the Orin Line. However, as BNSF was unable to produce any documentation supporting any clearing and grubbing amounts for the Orin Line, BNSF did not include any additional quantities for the Orin Line segments of the OTRR either.

the acres that only require clearing. However, BNSF's cost calculations rely on virtually the same unit costs that Otter Tail presented.[68]

On Rebuttal, Otter Tail has continued to rely on its opening methodology and unit costs applied to the restated track miles of the OTRR and the unit costs from the 2002 Means Handbook. Total rebuttal investment for clearing and grubbing for the OTRR equals $1.57 million ($1.23 million for clearing and 0.34 million for grubbing).[69]

ii. Stripping

On Opening, Otter Tail did not include a separate cost for stripping. On Reply, BNSF included $4.56 million in investment for this activity. BNSF's inclusion of this cost is improper and unnecessary.

According to BNSF's Reply, at page III.F-61, "'Stripping' involves the removal of all vegetation, sod, topsoil and otherwise unsuitable embankment material including leaves, branches, and wood chips left over from clearing and grubbing activities." BNSF claims that this cost is necessary because it is discussed in the AREMA literature and also contained in the WRPI and BNSF construction specifications. BNSF calculates its costs for this item by developing the cubic yards ("CY") of stripping, assuming a depth of six inches, applied to a unit cost taken from the Means Handbook.

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68 BNSF's clearing unit cost for trees is $0.08 higher per acre than Otter Tail's unit cost, its clearing unit cost for brush is $0.01 higher per acre and its grubbing unit cost is $0.04 higher. These minor differences are caused by slight differences in the location factors applied to the Means Handbook unit costs due to BNSF's overstated route miles.

69 See Exhibit III-F-18.

Stripping provides yet another example of BNSF's inclusion of unnecessary costs in an effort to inflate the investment costs of the OTRR. Inclusion of a separate cost for stripping is unnecessary for several reasons. First, there is only a small amount of clearing and grubbing required by the OTRR[70] so there will be minimal amounts of "leaves, branches and wood chips left over from the clearing and grubbing activities." Second, excavation, by definition, entails removal of earth which includes the top six inches of material. As an estimated 30% of the excavated material will be wasted (which would include any unsuitable material),[71] applying an additional cost to these same excavation quantities results in a double count of costs.

Third, the specifications referred to by BNSF require removal of material from embankment locations only "if necessary." BNSF did not provide any evidence that this was necessary. Fourth, BNSF did not provide any reason to believe that all the unsuitable material was not removed during the excavation process when the lines of the OTRR were originally constructed. Therefore, the Engineering Report and Orin Line quantities already reflect the removal of unsuitable material.

Finally, BNSF implies that stripping costs must be included as a separate cost item as it is not included in the unit costs for clearing, grubbing or earthwork. As shown above, Otter Tail has included all the quantities (the top six inches of material), performed all the tasks (removal and wasting of unsuitable material) and applied the relevant costs. BNSF's inclusion of costs for stripping is a clear case of double counting investment expense for the OTRR.

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70 As BNSF knows, and as confirmed by the small amount of clearing shown on the ICC Engineering Reports, only a small portion of the OTRR route is forested. The vast majority of the OTRR route is through land with minimal vegetation. See BNSF Reply at III.F-49 to III.F-52, describing the route of the OTRR as grasslands, prairie and cropland.

71 BNSF even admits this. BNSF Reply at III.F-82, note 75, states "In some instances waste is material that is unsuitable for embankment."

iii. Foundation Conditioning

On Opening, Otter Tail did not include a separate cost for foundation conditioning. On Reply, BNSF included $39.90 million in investment for this activity, basing its calculations on an application of excavation and compaction unit costs to a portion of the earthwork of the OTRR. BNSF's inclusion of this cost is improper, unnecessary, unsupported, and serves merely to increase the investment costs of the OTRR.

BNSF's inclusion of this cost is improper for several reasons. First, at page III.F-63, BNSF states "During the engineering design phase of the OTRR construction, the soils along the route will be tested to determine the amount of foundation conditioning required." The amount of conditioning required, if any, will indeed be determined by soil samples taken during the engineering design phase of construction. However, BNSF has not taken any such samples to determine the need for foundation conditioning.[72]

Second, BNSF has presented no evidence, which only BNSF would have, that foundation conditioning was performed for any of the lines of the OTRR (including the recently constructed Orin Line). BNSF attempts to support its contention by referring to "typical construction practices along this route," but there is no demonstration that this is required for the OTRR route itself. BNSF merely assumed, without any analysis, that 100% of the cuts and 20% of the fills would require

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[72] OTRR submitted a workpaper request for support of BNSF's soil analyses. BNSF responded that one of its engineering consultants (Mr. Bobby Phillips) made some observations and took some samples and another of BNSF's engineering consultants (Mr. Gerry Millar) confirmed the conclusions of Mr. Phillips. However, BNSF did not provide any material related to the alleged samples. (See Otter Tail Rebuttal Workpaper Vol. 2, p. 6150.)

foundation conditioning.[73]

Third, to the extent that foundation conditioning may be required in isolated areas, it is logical to assume that such quantities are already reflected in the ICC Engineering Report earthwork quantities. These are the same quantities to which both parties have already applied excavation and compaction unit costs. Applying these costs again to these quantities would be a double count of costs.

Finally, if the results of the analyses undertaken during the engineering design phase of the OTRR's construction determined that foundation conditioning was required in certain areas, and the quantities are in excess of those used to estimate earthwork costs, foundation conditioning would be undertaken and the costs covered by a portion of the funds allocated for contingencies.[74]

For the above reasons, Otter Tail has not included separate costs for foundation conditioning.[75]

iv. Undercutting

On Opening, Otter Tail did not include a separate cost for undercutting. On Reply, BNSF, maintains that monies need to be included for this activity.[76] Undercutting is another unsupported, and unnecessary, cost item that has been included by BNSF.

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73 It is also worth noting that BNSF's support for foundation conditioning is that water will either need to be added or removed from the soil, but BNSF does not specify which would be applicable to the OTRR. The removal of water is contrary to BNSF's claim that a substantial amount of water (over twice the amount that OTRR deems necessary, as discussed infra) will need to be added to the earthwork for the OTRR. BNSF has the OTRR paying to remove water and then paying again to add water. This makes no sense.

74 As discussed, infra, in the contingency section (Section III-F-11), the STB's stand-alone decisions have consistently required the inclusion of a contingency amount equaling 10% of the total construction costs in developing the investment monies for stand-alone railroads. These monies are accumulated for the sole purpose of covering any unforseen or unanticipated expenses encountered during the construction of the stand-alone railroad. However, BNSF's investment presentation already includes every possible potential expense (as evidenced by its unsupported assertions with regard to the amount of foundation conditioning as well as many other construction components as discussed by Otter Tail throughout this Section III-F) and then BNSF applies the 10% contingency factor. This approach not only increases the contingency monies but ensures that these monies are never utilized in the construction process. In essence, the stand-alone railroad is saddled with recovering a very large amount of monies for contingencies that are unnecessary.

75 Otter Tail also notes that foundation conditioning has not appeared in any prior stand-alone decision, including McCarty and PPL where the SARRs traversed some of the same lines as the OTRR.

76 See BNSF Reply at III.F-65.

BNSF's inclusion of costs for undercutting is incorrect for at least four reasons. First, BNSF has provided no support for its assumption, on page III.F-65, that "the minimum amount of unsuitable material to be excavated and removed would be 10 percent of total excavation." Second, the ICC Engineering Reports give no indication that undercutting was required. If undercutting were necessary, however, it is logical to assume, absent supporting documentation otherwise, that all excavation quantities, including any undercutting, were captured in the earthwork quantities contained in the ICC Engineering Reports. Third, any unsuitable material uncovered during the excavation process would be disposed of as part of the 30% waste material. Finally, Otter Tail notes that undercutting costs have been rejected by the STB in its recent decisions.[77]

For the above reasons, Otter Tail has not included any costs for undercutting in its Rebuttal calculations.

b. Earthwork

On Opening, Otter Tail relied on the ICC Engineering Reports, publicly available data for the Orin Line, data for the Eagle Butte Branch provided by BNSF in discovery and U.S. Geological Survey ("USGS") topographical maps in concert with the CARDS program (included in Otter Tail's Opening electronic workpapers) to calculate the earthwork requirements of the OTRR.[78] On Reply, BNSF relied on these same documents with the exception that BNSF used USGS maps in concert with its own computer programs.[79] The parties' respective approaches to developing earthwork quantities for the OTRR are discussed below.[80]

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77 See Duke-NS at 95; CP&L at 82; Duke-CSXT at 80.
78 See Otter Tail Opening at III-F-12 to III-F-23.
79 As discussed in Section III-F-2(c), infra, BNSF refused to provide the computer programs on which it relied.
80 Otter Tail's rebuttal earthwork quantities are contained in Exhibit III-F-23

i. Segments For Which Engineering Reports Exist

On Opening, for those line segments covered by the ICC Engineering Reports, Otter Tail used the earthwork quantities from those ICC Engineering Reports to develop the OTRR line segment earthwork quantities. On Reply, at III.F-66-67, BNSF states that it accepted Otter Tail's methodology for these line segments. On Rebuttal, Otter Tail continues to rely on its Opening methodology.[81]

ii. Segments For Which There Are No Engineering Reports

As discussed on Opening,[82] there are six line segments of the OTRR for which ICC Engineering Reports were not available.

(a) Campbell, WY to Eagle Butte Junction, WY

On Opening, for the Campbell to Eagle Butte line of the OTRR (the Eagle Butte Branch), Otter Tail based its calculations on the earthwork quantities contained in the construction bid documents for this line provided by BNSF in discovery. On Reply, BNSF accepted Otter Tail's calculations.[83]

(b) Converse Yard, WY to Donkey Creek, WY And Reno Junction, WY to Jacobs Junction, WY

On Opening, Otter Tail developed its earthwork quantities for the Converse Yard to Donkey Creek and Reno Junction to Jacobs Junction[84] line segments of the OTRR based on Burlington Northern Railroad Company witness Jerry R. Masters February 28, 1985 IPS[85] testimony.[86] For the

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81 On Reply, BNSF made an adjustment to the grading quantities of valuation section NP-1-MT to reflect the fact that there has been a minor change in the alignment of the BNSF where the Big Horn Tunnel was located. Specifically, this tunnel, which was in place when the ICC Engineering Reports were compiled, has been abandoned and BNSF constructed a line change around the tunnel location. Otter Tail has reviewed BNSF's workpapers and has accepted BNSF's minor earthwork quantity adjustments.

82 See Otter Tail Opening at III-F-16 to III-F-19

83 See BNSF Reply at III.F-68.

84 The Reno Junction to Jacobs Junction line intersects with the Converse Yard to Donkey Creek line at Reno Junction.

85 ICC Docket No. 37029, Iowa Public Service Company v. Burlington Northern Railroad Company and Chicago and North Western Transportation Company ("IPS".)

86 See Otter Tail Opening at III-F-16 to III-F-18 and Opening Workpaper Vol. 6, pp. 4313 to 4321.

Converse Yard to Reno Junction section of the line, and the Reno Junction to Jacobs Junction branch, Otter Tail used the quantities based on a 28-foot roadbed width. For the Reno Junction to Donkey Creek section of the line, Otter Tail adjusted the quantities to reflect a 24-foot roadbed width.

On Reply, BNSF accepted Otter Tail's methodology except for the use of a 24-foot roadbed width between Donkey Creek and Reno Junction.[87]

As discussed above in Section III-F-2 (right-of-way width), a 24-foot roadbed section is sufficient for the Donkey Creek to Reno Junction portion of the OTRR. Therefore, Otter Tail continues to rely on its opening methodology and calculations.

(c) Dutch, WY to Nerco Juction, MT, Sarpy Junction, MT to Kuehn, MT and Nichols, MT to Big Sky, MT

On Opening, Otter Tail developed the quantities for these three coal mine branches using L. E. Peabody & Associates, Inc.'s Computer Aided Railway Design System ("CARDS") program.[88] It was necessary for Otter Tail to use the CARDS program because BNSF did not provide any earthwork data for these three line segments in response to Otter Tail's discovery requests.[89] On Reply, BNSF rejected Otter Tail's use of the CARDS program and relied on its own computer program. BNSF's criticisms of the calculations resulting from the CARDS program are erroneous. Furthermore, BNSF's calculations are unsupported and should be rejected.

BNSF presents two criticisms of Otter Tail's calculations. First, BNSF claims that Otter Tail's calculations are deficient because the subgrade levels do not match the actual subgrade levels of the existing branches.[90] BNSF's criticism has no merit. There is no requirement that the stand-alone

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87 See BNSF Reply at III.F-67 to III.F-68.

88 See Otter Tail Opening at III-F-18 to III-F-19, Opening Workpaper Vol. 6, pp. 4397 to 4464 and electronic workpapers included with Otter Tail's opening filing under the "CARDS" subdirectory in the III-F-2 folder.

89 See Otter Tail Opening Workpaper Vol.6, pp. 4503-4504 for a copy of BNSF's response to Otter Tail's Request For Production No. 84.

90 See BNSF Reply at III.F-69.

railroad have the same subgrades as the existing railroad for these segments. What is important is that the grades be no more onerous than the existing grades so that the operations are not affected. As Otter Tail stated on Opening, at III-F-19, the grades on these lines are no greater than the current grades. Furthermore, BNSF criticizes Otter Tail's calculations stating, at page III.F-70, "the operator of the CARDS program manipulated the railroad subgrade elevation to achieve what CARDS would consider an optimal subgrade elevation that balances almost perfectly the amount of cut and fill required." BNSF fails to grasp that this is precisely the concept of a least cost, most efficient railroad.

BNSF's second criticism of Otter Tail's CARDS analysis is that the CARDS program does not recognize changes in elevation that are less than 20 feet (based on the 20-foot contours of the USGS topographic maps). BNSF is incorrect. As shown in Otter Tail's Opening workpapers, there are several instances where the elevation between contour lines has been interpolated.[91]

BNSF also complains that the CARDS data could not be corrected to produce meaningful results because of the manually input USGS topographical map data and the need for the specialized digitizing tablet which Otter Tail did not provide. Notwithstanding the fact that corrections are not necessary, CARDS can be operated from the computer keyboard.[92] Furthermore, BNSF did not submit a request to Otter Tail for the digitizing tablet.

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91 See Otter Tail Opening Workpaper Vol. 6, pp. 4407 to 4413, 4430 to 4439 and 4455 to 4463 (Column "NAT GND ELEV".) See also Otter Tail Rebuttal Workpaper Vol. 2, pp. 6153 to 6176 and Rebuttal electronic workpaper "CARDS Elevation Interpolations.xls."

92 In its Opening electronic workpapers, Otter Tail submitted a version of the CARDS program that can be operated from the computer keyboard. See Otter Tail Opening electronic workpaper "Cards_t0.bas"included in the "CARDS" subdirectory under the III-F-2 folder

To develop its estimated earthwork quantities for these three line segments, BNSF relied on some sort of computer program(s).[93] In its Reply filing, BNSF included primarily hard-copy workpapers related to its calculations along with a few computer files which require special software. Otter Tail filed a workpaper request asking for all of the electronic data and the programs used to generate the data. In response, BNSF provided only part of the requested information. BNSF claims to have furnished all of the requested computer files but failed to provide the software necessary to access the computer files,[94] rendering useless the computer files that BNSF did produce.[95] Consequently, Otter Tail is unable to even review, much less verify, the calculations performed by BNSF. BNSF's failure to provide the programs it relied on makes its evidence in this regard completely useless and this evidence must be excluded. This is the same situation that the STB addressed in TMPA when it excluded BNSF's evidence based on its "RAILS" program because the "program was not made available... for ... review and manipulation, nor was any documentation supplied."[96]

BNSF's refusal to provide the programs necessary to evaluate its evidence requires that this evidence be excluded from consideration. BNSF refused to provide these programs to Otter Tail, so Otter Tail was unable to review BNSF's calculations. As noted previously, BNSF's refusal to

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93 BNSF refers to a "DEM analysis" at page III.F-71 of its Reply.

94 See "BNSF's Responses And Objections To Otter Tail's Fifth Request For Workpapers" dated October 27, 2003. BNSF's response to Request No. 60 is contained in Otter Tail Rebuttal Workpaper Vol. 2, p. 6150.

95 BNSF did make reference to a Digital Evaluation Model being available on the Internet. However, this model merely gathers data that is used by the software which BNSF refused to produce (Descartes, Microstation and GeoPak) and is of no value by itself.

96 See TMPA at 68.

provide the software renders its calculations unsupported and unverifiable and therefore BNSF's evidence in this regard must be rejected by the STB.[97]

On Rebuttal, Otter Tail continues to rely on its Opening methodology and calculations utilizing the CARDS program[98] (which was included in Otter Tail's electronic workpapers) with two modifications. As discussed in Section III-B-1, Otter Tail has made four adjustments to its segment mileages. Those adjustments impact two of these line segments. The Sarpy Jct. to Kuehn line segment has been shortened by 1.54 miles and the Nichols to Big Sky segment has been lengthened by 0.44 miles. These adjustments have been incorporated into the CARDS analysis included in Otter Tail's Rebuttal.[99]

iii. Yards

(a) Configuration

Yard configuration was discussed in Section III-B, supra.

(b) Yard Grading

On Opening, Otter Tail developed the earthwork quantities for the OTRR yards (other than Converse Yard, Campbell Yard and Dutch Yard) based on the track requirements at each yard and the earthwork quantities from the Engineering Reports.[100] For the Converse Yard, quantities were calculated by applying the track requirements to the amount per mile for additional tracks based on

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97 Otter Tail notes that, if BNSF had provided the requested earthwork data for these line segments in discovery in response to Otter Tail Request For Production No. 84, neither party would have had to resort to an alternative method of earthwork quantity calculation.

98 As noted in Otter Tail Opening at III-F-19, footnote 42, CARDS was accepted by the ICC in Coal Trading. See October 28, 1988 ALJ decision at 41 and the ICC's January 17, 1990 decision at 6 I.C.C. 2d 361,419. Earthwork quantities developed using CARDS were also accepted by the STB in Duke-NS. See Duke-NS at 92.

99 See Otter Tail Rebuttal Workpaper Vol. 2, pp. 6153 to 6176 and Rebuttal electronic workpapers included in the "CARDS" subdirectory under the III-F-2 folder.

100 See Otter Tail Opening at III-F-20 to III-F-23.

the Orin Line documents. For the Campbell Yard, quantities were calculated by applying the track requirements to the amount per mile for additional tracks based on the Eagle Butte Branch documents. For the Dutch Yard, the quantities were calculated based on the quantities developed for the Decker Branch using the CARDS program.

As explained by Otter Tail on Opening,[101] and discussed further below, the methodology used to develop the yard earthwork quantities (for yards other than the Converse, Campbell and Dutch Yards) was necessitated by the methodology, based on the ICC Engineering Report earthwork quantities, used to develop the earthwork quantities for the main track and passing sidings of the OTRR's line segments.

On Reply, BNSF utilized the same methodology as Otter Tail to develop earthwork quantities for the main track and passing sidings of the OTRR (i.e., assuming one-foot fill for yard track), but rejected Otter Tail's approach for the calculation of yard grading. BNSF claims that Otter Tail misapplied the STB's prior findings with respect to earthwork quantities for yards included in the Engineering Reports. First, BNSF states that Otter Tail did not provide any evidence that the assumption of one-foot of fill and 15-foot track centers understated the yard quantities contained in the Engineering Reports. Second, BNSF claims that quantities for yards placed where none existed previously should be based on existing topography (using U.S. Geological Survey ("USGS") maps and a specialized computer program) because the ICC Engineering Reports cannot include quantities for yards not in existence at that time.[102]

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101 See Otter Tail Opening at III-F-20 to III-F-22.

102 However, BNSF did accept Otter Tail's methodology, based on the ICC Engineering Reports, for the calculation of the earthwork requirements for the interchange yard at Terry, MT and a portion of the Glendive Yard. BNSF's explanation for accepting Otter Tail's methodology was that these yards existed when the ICC Engineering Reports were completed.

BNSF cannot rely on the one-foot fill assumption for the calculation of main track and passing siding earthwork requirements on the one hand but not rely on it for yard earthwork requirements on the other hand. As discussed by Otter Tail on Opening, the ICC Engineering Reports do not separately identify earthwork quantities for yard track. Therefore, consistent with past practice in stand-alone rate cases, an amount equal to a one-foot fill for the total amount of yard track in each valuation section was deducted from the total earthwork quantities for each valuation section. The remaining earthwork quantities for each valuation section were then distributed among the miles of main track for that particular valuation section. Stated differently, any earthwork quantities for yard track that may have exceeded those required for a one-foot fill were allocated to the main track. Following this logic, when calculating yard track earthwork requirements for the OTRR, a one-foot fill must be assumed, otherwise there will be a double-count in total earthwork quantities. This is a mathematical certainty, as the STB recognized in WPL:

> "[I]n using the Engrg Rpts (which contain only the combined grading for yards and lines), the parties agreed to assume that the original rail yards required a minimum amount (1 foot) of fill. This allotted the vast majority of grading work to the roadbed. Given the parties' agreement on yard fill, it would be inappropriate for UP to seek to maximize the amount of grading on the line (by assuming minimum fill in the yards) and then, after the grading requirements are established, to revise upward the amount of grading in the yards." (See WPL at 81)

As this passage demonstrates, BNSF's use of the one-foot fill assumption for the existing yards in its development of main-line earthwork quantities, while also revising upward the amount of earthwork for the OTRR yards, is improper.[103]

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[103] BNSF's approach has been rejected by the STB in recent decisions. See Duke-NS at 91; CP&L at 79; Duke-CSXT at 77.

BNSF's stated explanation for deviating from the procedures accepted by the STB is that the earthwork for the yards in "new" locations is not included in the earthwork quantities reflected in the ICC Engineering Reports. BNSF's explanation completely misses the mark. In developing the main track earthwork quantities, both Otter Tail and BNSF assumed a one-foot fill for all the yard track in place when the ICC Engineering Reports were developed. This assumption was made because the ICC Engineering Reports do not separately identify earthwork quantities for yards and main track. However, this does not mean that all yards actually required a one-foot fill. It is very likely that, at some yard locations in the valuation sections covering the OTRR, more than a one-foot fill was required and in some locations more excavation may have been required.[104] The point is that an assumption was made by both parties that "allotted the vast majority of grading work to the roadbed" (id.), and this assumption must also be used when calculating earthwork quantities for the OTRR's yards or an overstatement in total quantities will be made.[105]

BNSF also asserts that it is "likely" the original yards of the lines replicated by the OTRR required less than one foot of earthwork.[106] BNSF offers no support for this assertion and made no efforts to discover why the yards on the original lines of the OTRR were located where they were.

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104 BNSF criticizes Otter Tail for not providing evidence that the one-foot fill assumption is not valid. BNSF's position is unfounded. Otter Tail stated that the one-foot fill was an assumption. BNSF accepted that assumption, but only where it aided BNSF in increasing the earthwork quantities, i.e., on the input side of the quantity adjustment process (where it maximizes the earthwork quantities assigned to the main line track) but not the output side of that process (where BNSF again increases the quantities.) BNSF has not demonstrated that the one-foot fill is accurate and BNSF is the only party that could possibly have the data to demonstrate this, as BNSF (or its predecessors) originally constructed these yards.

105 Because the adjustment program (the Excel spreadsheet methodology used by both parties) increases the allocated ICC Engineering Report quantities per mile to reflect modern design standards, any yard earthwork quantities (over and above those resulting from the conservative one-foot fill assumption) that are left in and allocated to the main line and passing sidings are increased in the same manner, thus increasing the overstatement in the quantities assigned to the main line and passing sidings of the OTRR.

106 See BNSF Reply at III.F-73.

In its earthwork-centered universe, BNSF ignores the myriad other factors that could have influenced yard location, including, for example, factors such as the operational need for a yard in a particular location, proximity to towns or services, government incentives or favors, and weather patterns.

The only way that "actual" earthwork quantities could be used for the OTRR yards is if the actual earthwork quantities for the original BNSF yards were calculated and removed from the total earthwork quantities for each valuation section prior to distributing the remaining earthwork quantities to the main track. This is not possible because the ICC Engineering Reports do not identify earthwork quantities for yards and BNSF did not provide any such data in response to Otter Tail's discovery requests.

Another measure of the reasonableness of Otter Tail's approach is whether the OTRR is building more yard tracks than existed at the time of the ICC Engineering Reports. As long as the OTRR is building fewer yard tracks than were included in the ICC Engineering Reports, all yard tracks must be constructed assuming a one-foot fill or else the earthwork quantities will be overstated. For the valuation sections where the OTRR has yards, the OTRR is building only 17% of the yard tracks that existed for these valuation sections when the ICC Engineering Reports were developed.[107] Even given its overstated yard requirements, BNSF itself constructed only 18% of the yard tracks that originally existed.[108] Because neither party built more yard tracks than were included

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[107] On Rebuttal, Otter Tail has included 72.95 miles of yard track for all yards other than the Converse, Campbell and Dutch Yards (including the modifications at Fargo, Glendive and Donkey Creek.) For the applicable valuation sections, the ICC Engineering Reports included a total of 432.44 miles of yard tracks. See Otter Tail Rebuttal electronic workpaper "OTRR Yard Track Comparison.xls."

[108] BNSF included 77.49 miles of yard track for the locations covered by ICC Engineering Reports. (See Otter Tail Rebuttal electronic workpaper "OTRR Yard Track Comparison.xls.") This excludes the 5.45 miles BNSF constructed at Converse, Campbell and Dutch Yards. (See BNSF Reply Errata electronic workpaper "III F 2 OTRR GRADING_Errata.xls".)

in the ICC Engineering Report quantities, the use of anything greater than a one-foot fill for computing yard track earthwork quantities for the OTRR results in an overstatement of those quantities.

To develop its estimated earthwork quantities for the OTRR yards, BNSF relied on a computer program.[109] In its Reply filing, BNSF included hard-copy workpapers and a few spreadsheets related to its calculations but not the program that BNSF relied upon. Otter Tail filed a workpaper request asking for the program used to generate the data. In response, BNSF refused to provide the software necessary to access the computer files,[110] or any documentation about the software, rendering useless the computer files that BNSF did produce. Consequently, Otter Tail (and the STB) is unable to verify the calculations performed by BNSF.

BNSF's refusal to provide the program necessary to evaluate its evidence requires that this evidence be excluded from consideration. As noted previously, BNSF's refusal to provide the software renders its calculations unsupported and unverifiable and, therefore, BNSF's evidence in this regard must be rejected by the STB.[111] Furthermore, as discussed above, Otter Tail's methodology has been accepted by the STB in WPL and Duke-NS and it is equally appropriate in this proceeding. For the reasons discussed above, Otter Tail continues to rely on its opening

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109 BNSF Reply at III.F-76 refers to "Delorme's TopoUSA software package."

110 See "BNSF's Responses And Objections To Otter Tail's Seventh Request For Workpapers" dated November 3, 2003. BNSF's response to Request No. 30 is contained in Otter Tail Rebuttal Workpaper Vol. 2, p. 6152.

111 BNSF also separates its yard grading quantities into the three types of excavation - common, loose rock and solid rock. BNSF has provided no documentation supporting its distribution of the materials. The yards in each valuation section most likely included all three types of excavation but those quantities over and above the one-foot fill are included in the quantities distributed to the main line track and passing sidings using the methodology presented by Otter Tail and accepted by BNSF. Finally, Otter Tail assumed that the yard earthwork quantities (for all but the Converse, Campbell and Dutch Yards) would consist of borrow which has a higher unit cost than any of the three excavation types. For the Converse, Campbell and Dutch Yards, Otter Tail assumed common excavation would be required consistent with the Orin Line and Eagle Butte Branch construction documents and Otter Tail's CARDS analysis for the Decker Branch, respectively.

evidence methodology to develop earthwork quantities for yards located on the OTRR in sections covered by the ICC Engineering Reports.[112]

Otter Tail also continues to utilize its opening evidence methodology for the earthwork for the Converse, Campbell and Dutch Yards (which BNSF accepted).[113]

iv. Unit Costs

On Opening, Otter Tail developed earthwork unit costs for each of the three types of excavation (common, loose rock and solid rock) and borrow using the 2002 Means Handbook unit costs adjusted for the Means Handbook location factor.[114]

On Reply, BNSF also utilized the Means Handbook but criticized Otter Tail's unit costs stating that Otter Tail had selected the wrong equipment and overlooked many cost components.[115]

As discussed below under each of the four types of material, virtually all of BNSF's criticisms are erroneous. However, there is one very important point that pertains to all of the earthwork unit costs for the OTRR. BNSF has conducted at least four major grading projects in recent years - the construction of the Orin Line, the construction of the Eagle Butte Branch, the expansion of the Guernsey Yard and the day-lighting of Guernsey Tunnel No. 2. These projects all contained the different types of material encountered on the OTRR yet BNSF has presented no documentation, cost or otherwise (which only BNSF would have), demonstrating that either: (1) the equipment, and unit

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112 Earthwork quantities for yards is another example of where BNSF has deviated from its position in TMPA. In TMPA, the ICC Engineering Reports were used to develop earthwork quantities and there is no mention of a dispute regarding the calculation of yard earthwork quantities. This indicates that BNSF most likely agreed with complainant's development of yard earthwork quantities. See TMPA at 116-119 and 136 (n. 70.)

113 See BNSF Reply at III.F-75.

114 See Otter Tail Opening at III-F-23 to III-F-24.

115 See BNSF Reply at III.F-80 to III.F-101.

costs, used in BNSF's Reply were used in these actual projects or (2) the equipment, and unit costs, selected by Otter Tail were not used in these projects.

As discussed below, BNSF has grossly overstated the unit costs for the earthwork of the OTRR.[116]

(a) Common Excavation

On Opening, Otter Tail developed its common excavation costs using the Means Handbook. Otter Tail included the costs to move the earth using elevated scrapers (assisted by dozers) and to compact the common excavation used in embankment for the OTRR. Otter Tail used a unit cost of $3.67 per CY.[117]

On Reply, BNSF disagreed with all of Otter Tail's costs for common excavation.[118] BNSF claims that the elevated scraper selected by Otter Tail is unsuitable for excavating the materials encountered during construction of the OTRR unless the material has already been windrowed by a dozer or motor grader. BNSF substitutes a higher-cost scraper (assisted by dozers) for the OTRR east of Bismarck, ND and uses a 50/50 distribution of the high-cost scraper (assisted by dozers) and a backhoe excavator and 22 CY off-road hauler combination west of Bismarck, ND. BNSF also added the cost for a dozer to spread the embankment material and mix in the water added during the compaction process and also spread the waste material dumped elsewhere. Finally, BNSF rejected Otter Tail's combination of a vibrating roller and a sheepsfoot roller for compaction and proposed the exclusive use of the higher-cost sheepsfoot roller. BNSF uses a unit cost of $9.31 per CY for

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116 Otter Tail's rebuttal earthwork unit costs (and total earthwork costs) are contained in Exhibit III-F-23.

117 This figure is after the application of the Means Handbook location factor adjustment. See Otter Tail Opening Errata electronic workpaper "OTRR Grading.xls."

118 See BNSF Reply at III.F-81 to III.F-84.

common excavation east of Bismarck and a cost of $8.45 per CY for common excavation west of Bismarck.[119] BNSF's modifications are discussed below.

As a threshold matter, BNSF has not provided any evidence (e.g., core sample analyses, soil studies or geological research) to support its claim of cohesive and semi-cohesive materials.[120] In fact, BNSF changes its description of the condition of the soil along the OTRR route as necessary in its Reply to support its increased construction costs. BNSF's claim of clay and silt cohesive materials supposedly provides the support for BNSF's use of high-cost equipment for earthwork.[121] This contradicts BNSF's position that the soil is loose, dry material, which is used as support for increasing the costs of water for compaction .[122] Finally, in support of its undercutting costs, BNSF states, at III.F-65, "Many different layers of soil are encountered during a roadbed build." This indicates that what is seen at the surface is not necessarily a good indication of what will be encountered under the surface. Yet, BNSF does not delve below the surface, or at least does not provide any support that it did. For BNSF, the soil composition conveniently changes depending upon the cost item being forced upon the OTRR.

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119 These figures are different than the ones shown in BNSF's Reply Narrative as they are after the application of the Means Handbook location factors. See BNSF Reply Errata electronic workpaper "IIIF2 OTRR GRADING_Errata.xls", worksheet "IIIF Unit Costs."

120 As noted previously, OTRR submitted a workpaper request for support of BNSF's soil statements and referenced analyses. BNSF responded that one of its engineering consultants (Mr. Bobby Phillips) made some observations and took some samples and another of BNSF's engineering consultants (Mr. Gerry Millar) confirmed the conclusions of Mr. Phillips. However, BNSF did not provide the results of any material analysis related to the alleged samples. (See Otter Tail Rebuttal Workpaper Vol. 2, p. 6150.)

121 BNSF refers to the OTRR soil conditions as "gumbo type of heavy clay" (BNSF Reply at III.F-52), "wet muck" (BNSF Reply at III.F-65) and "swampy terrain" (BNSF Reply III.F-259.)

122 See BNSF Reply at III.F-120 stating "Based on their field observations, the BNSF Engineering Consultants conclude that the dry silty sand soils along the OTRR route would require substantially more water..." (emphasis added.)

BNSF also attempts to support its high-cost equipment for common excavation, not by providing documentation of actual BNSF construction projects on the OTRR's route, but by relying on some conversations with an unknown equipment supplier in Fargo, ND, and an unknown general contractor in Fargo, combined with the random observations of five highway projects at two locations in the vicinity of, but not on, the OTRR route, three near Fargo and two near Buffalo, WY. Based on these very arbitrary and limited encounters, and BNSF's unsupported soil "arguments based on its field observations, BNSF concludes that Otter Tail's equipment is deficient and that much higher-cost equipment is required.

The Means Handbook unit cost for the scraper selected by BNSF includes assistance by dozers at a ratio of one dozer for every four scrapers.[123] The dozers are used to push the scraper along if some difficult material is encountered. BNSF claims that the "preferred ratio" is one dozer for every two scrapers and adds extra cost for more dozers.[124] BNSF has provided no support that the "preferred ratio" is necessary and no evidence that the ratio of dozers included in the Means Handbook scraper unit cost is insufficient. BNSF's extra dozers are unnecessary and only inflate BNSF's earthwork unit costs.

BNSF has not proven that Otter Tail's equipment configuration is inadequate or deficient. The elevated scraper used by Otter Tail is capable of handling the materials that will be encountered during the construction of the OTRR. The Means Handbook unit cost for the elevated scraper selected by Otter Tail also includes assistance by the same dozers at the same rate as BNSF's scraper

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123 See BNSF Reply workpapers BNSF.RP.WP.III.F-0431 to 0432.
124 See BNSF Reply at III.F-84.

(one dozer for every four scrapers).[125] BNSF includes a quote from the Track Cyclopedia that elevating scrapers are designed for working in loose materials.[126] Even if this is true, which Otter Tail does not believe, BNSF has provided no definition of "loose materials." Furthermore, a picture of the Caterpillar Company's lightest-duty self elevating scraper shows it working on grass and vegetation-covered ground.[127]

BNSF also argues that the elevated scraper is a poor choice because its experts did not see any projects using this equipment on a one-day search during their field trip. This does not mean that the elevated scraper is not feasible or that other contractors do not use it. BNSF's observations are not very probative, if at all. In fact, for the most part, construction projects they rely on are not near the OTRR's route. One of the road projects near Buffalo, WY is, in fact, west of Buffalo on the edge of the Bighorn Mountains, 25 miles away from the OTRR route.[128] One of the road projects "near Fargo" is actually located southeast of Moorhead, MN in an area surrounded by lakes, 23 miles from the OTRR route.[129] Neither of these projects are representative of conditions on the OTRR route.

In response to BNSF's discussions with an equipment supplier and a general contractor, Otter Tail contacted an earthwork equipment manufacturer (also located in Fargo). This conversation confirmed that the elevated scraper selected by Otter Tail is capable of handling the material that will be encountered along the OTRR route, especially east of Bismarck. In fact, the manufacturer stated

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125 See Otter Tail Rebuttal Workpaper Vol. 2, pp. 6180 to 6182.
126 See BNSF Reply at III.F-83.
127 See Otter Tail Rebuttal Workpaper Vol. 2, p. 6184.
128 See Otter Tail Rebuttal Workpaper Vol. 2, p. 6178.
129 See Otter Tail Rebuttal Workpaper Vol. 2, p. 6179.

that the paddle blades of the elevating scraper will help break-up the material and make it easier to distribute and spread the material when the scraper is unloaded.[130]

The Means Handbook is full of costs for all types of earthwork equipment. Many different types of equipment can be used to move many different types of earth and the unit cost per CY can remain the same. For half of the earthwork west of Bismarck, BNSF used a crawler mounted, 3 CY capacity backhoe in combination with a 22 CY off-road hauler.[131] For the other half of the earthwork west of Bismarck, BNSF used a scraper. The cost per CY for the backhoe/hauler combination is actually less than the cost per CY for the scraper[132] (which also hauls and spreads the material).[133]

This phenomenon is also true with respect to the equipment selected by Otter Tail. The elevated scraper has a cost of $3.25 per CY (prior to application of the location factor adjustment). Otter Tail reviewed the Means Handbook for different types of earthwork moving equipment and decided that the backhoe chosen by BNSF is not the most appropriate equipment. As noted by the STB in recent decisions,[134] backhoes are more suited for excavating earth below the level of the equipment, e.g.,

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130 See Otter Tail Rebuttal Workpaper Vol. 2, p. 6183.

131 BNSF selected the 22 CY off-road hauler because it claims that the "25-ton, articulated off-road dump truck is the most popular size off-road hauler for this operation." (See BNSF Reply at III.F-85. (emphasis added).) BNSF has not delved into the reasons for this "popularity" even if it exists. In any event, the development of stand-alone costs does not depend on popularity but should be based on the least cost, most efficient methods and equipment. Otter Tail's experts believe the 42 CY off-road hauler fits that description and best fits the needs of the OTRR.

132 This is true even after BNSF's improper increase of the backhoe unit cost by 15% for loading material into trucks and 60% for "heavy soil." These additives are unnecessary as it takes no more time to place the material in the hauler next to the excavator than it does to place the material on the ground. BNSF has not supported its use of the "heavy soil" additive as it has not provided any soil analyses as discussed previously. Otter Tail notes that the Means Handbook also has a 15% reduction for "soft soil or sand", i.e., the kind of soil that BNSF uses as its justification for the excessive amounts of water it adds for compaction. These additives are addressed in greater detail in the next section on loose rock excavation unit costs.

133 As shown in Table III.F.2-8 in BNSF Reply at III.F-88, the cost of the scraper is $6.65 per CY and the cost of the backhoe/hauler combination is $6.41 per CY ($4.13 + $2.28.)

134 See Duke-NS at 94; CP&L at 81; Duke-CSXT at 79.

digging trenches.[135] A power shovel is more suited for excavating large quantities of earth.[136] The Means Handbook shows a cost of $1.35 per CY for a 1½ CY capacity power shovel. When combined with the 42 CY hauler used by Otter Tail for loose rock, at $1.94 per CY, the resulting unit cost is $3.29 per CY, a mere four cents per CY higher than the cost of the elevating scraper.

Otter Tail believes that the equipment used on Opening is adequate to perform the earthwork required for the OTRR. However, in order to address BNSF's criticism, and to demonstrate that the use of different equipment has little impact on the costs assuming the different equipment is properly selected, Otter Tail has made a slight adjustment in the equipment used for common excavation. Otter Tail has continued to utilize the elevating scraper (assisted by dozers) that it submitted on Opening for those sections where BNSF used its scraper, i.e., east of Bismarck and for half of the excavation west of Bismarck. For the other half of the excavation west of Bismarck, Otter Tail has used the 1½ CY power shovel in combination with the 42 CY off-road hauler[137] as discussed above.[138]

Contrary to BNSF's claim, a dozer is not needed to incorporate the water for compaction in embankments.[139] The water is mixed with the soil during each lift as the layers of earth are laid and compacted. Moreover, a dozer is not needed to spread the waste materials in the area where the

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135 See Otter Tail Rebuttal Workpaper Vol. 2, pp. 6185 to 6189.

136 Id.

137 This is the same hauler used on opening by Otter Tail for loose rock and solid rock. See Otter Tail Opening Errata electronic workpaper "OTRR GRADING.xls", worksheet "Unit Costs."

138 Otter Tail notes that the STB has agreed with complainant's selection of a power shovel in lieu of a backhoe in recent decisions. See Duke-NS at 94; CP&L at 81; Duke-CSXT at 79.

139 This is especially true when the proper amount of water for compaction is added. As discussed infra, BNSF has significantly overstated the water necessary for compaction.

elevated scraper is utilized as the scraper itself is capable of handling that task. Otter Tail's position has been accepted by the STB in several recent decisions.[140]

BNSF's exclusive use of the higher cost sheepsfoot roller for all compaction is also unwarranted. BNSF bases this on its contention that the sheepsfoot roller is needed to break-up the material ("dirt clods").[141] BNSF has presented no evidence supporting this contention. Otter Tail's approach of using a combination of a sheepsfoot roller and a vibrating roller for compacting provides flexibility to better address the varying types of material that may be encountered.

As noted above, BNSF has not provided any first-hand evidence based on actual BNSF railroad projects (material that only BNSF would have) that the earthwork equipment and costs that it presented on Reply are what is actually needed to construct the OTRR.[142] Otter Tail has included the necessary equipment (and the applicable costs) to perform the required tasks. BNSF has done nothing more than present a different, and more expensive, method of performing the same tasks.[143]

On Rebuttal, Otter Tail has modified its Opening common excavation unit cost from the Means Handbook in order to address BNSF's criticisms and demonstrate that different equipment can be used with only a minor impact on costs. This results in an average common excavation cost of $3.84 per CY, an increase of only $0.17 per CY (or less than 5 percent) over opening.

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140 See TMPA at 119; Duke-NS at 94; CP&L at 80-81; Duke-CSXT at 78.

141 Furthermore, the claim that "dirt clods" will cause problems is contradicted by BNSF's later assertion that the OTRR route consists of "dry silty sand soils." See BNSF Reply at III.F-120.

142 Otter Tail firmly believes that if such material supported BNSF's development of costs, it would have been presented by BNSF.

143 Otter Tail further notes that none of these issues, with the exception of the dozer included by BNSF to spread the waste material, arose in TMPA (the SARR in TMPA overlaps the OTRR between Campbell, WY and Converse Yard, WY) and the STB rejected the inclusion of the dozer costs in TMPA. See TMPA at 116-119.

(b) Loose Rock Excavation

On Opening, Otter Tail developed its loose excavation costs using the Means Handbook. Otter Tail included the costs to: (1) rip the loose rock using a bulldozer with a ripper attachment; (2) place the ripped material into a truck with a shovel; (3) transport the material either to a location for embankment or to a waste site; (4) spread the waste material; and (5) compact the material used in embankment for the OTRR. Otter Tail used a unit cost of $5.82 per CY.[144]

On Reply, BNSF disagreed with all of Otter Tail's unit costs for loose rock excavation. BNSF substituted the unit cost for a 460 HP dozer (ripping very hard shale) for the 200 HP dozer used by Otter Tail. BNSF next included the cost for a 460 HP dozer to move the ripped material into piles. BNSF then substituted the same 3 CY backhoe (with a 15% additive for loading into trucks and a 60% additive for "heavy soil") that it used for common excavation west of Bismarck for the 3 CY power shovel used by Otter Tail. BNSF substitutes the 22 CY off-road hauler for the 42 CY off-road hauler used by Otter Tail. BNSF then adds the cost for a dozer to spread the embankment material. Finally, BNSF uses only the high cost sheepsfoot roller for compaction.[145] BNSF's modifications are discussed below.

First, BNSF claims that the 200 HP bulldozer and ripper selected by Otter Tail is incapable of ripping the material that will be encountered during the construction of the OTRR. BNSF maintains that a more powerful bulldozer is necessary based on its field trip observations and discussions with an equipment supplier and a general contractor. BNSF admits that Otter Tail's equipment selection is capable of ripping rock, but claims that an adjustable ripper cannot be attached to the equipment

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144 See Otter Tail Opening Errata electronic workpaper "OTRR Grading.xls."
145 See BNSF Reply at III.F-88 to III.F-95.

selected by Otter Tail. This claim is incorrect; the dozer selected by Otter Tail can be operated with an adjustable ripper.[146] BNSF has provided no support for the assertion that its 460 HP bulldozer and ripper are necessary or are the only feasible equipment capable of performing the required tasks.[147] BNSF has not provided any tangible support for its claim regarding the "very hard shale" or adverse conditions on which it bases its unit cost.[148]

As was demonstrated in the discussion of common excavation, there are many different types of equipment that can be utilized for similar costs.[149] On Opening, Otter Tail's ripping bulldozer was priced at $2.02 per cubic yard (prior to the adjustment for the Means Handbook location factors). BNSF's reply dozer is priced at $6.35 per CY for adverse conditions and $5.65 per CY for ideal conditions, three times the cost included by Otter Tail. However, a review of the Means Handbook pages included in both Otter Tail's opening workpapers and BNSF's Reply workpapers reveals that a 300 HP dozer ripping medium hard shale in ideal conditions is priced at $2.31 per CY,[150] a mere 15% higher than the unit cost utilized on opening by Otter Tail. In direct response to BNSF's criticisms, Otter Tail has utilized the 300 HP dozer on Rebuttal. The 300 HP dozer is the same type of dozer used to assist the elevated scraper utilized by Otter Tail for common excavation;[151] the cost

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146 See Otter Tail Rebuttal Workpaper Vol. 2, pp. 6190 to 6192.

147 All of the information that BNSF includes in its Reply Workpapers shows that other equipment can also do the job of ripping the loose rock but it does not demonstrate that Otter Tail's method is infeasible.

148 See BNSF Reply at III.F-94.

149 Bigger and more powerful equipment will always be able to perform the task. The objective of a stand-alone cost analysis, however, is to find the least cost equipment capable of performing the task. BNSF seems to have forgotten this objective.

150 See Otter Tail Opening Workpaper Vol. 6, p. 4340 and BNSF Reply Workpaper Vol.XI, BNSF.RP.WP.III.F-0433.

151 The 300 HP dozer is also used to assist BNSF's scrapers.

for medium hard shale represents a mid-range cost;[152] and the 300 HP dozer is capable of being equipped with an adjustable ripper.

BNSF next adds the cost for a bulldozer to move the ripped material into piles. Apparently, BNSF does not understand Otter Tail's process. As the loose rock is ripped by the bulldozer, it is scooped up by the shovel and placed in the hauler waiting next to it. Therefore, there is no need for the bulldozer.

BNSF did not accept the 3 CY shovel used by Otter Tail and substituted the 3 CY backhoe. As discussed in the common excavation section, supra, the backhoe selected by BNSF is more suited for trenching and digging below the surface. In response to BNSF's criticism, Otter Tail has replaced the 3 CY power shovel with a 1½ CY power shovel.[153]

BNSF tacks two adjustment factors onto its cost for the backhoe - a 60% additive for handling "heavy soil or stiff clay" and a 15% additive for loading the material onto trucks.[154] Neither additive is applicable. BNSF has provided no support for its assertion that the ripped material is comparable to "heavy soil or stiff clay." It is more likely that the ripped material will be closer to common earth. The additive for loading the material onto trucks is not necessary as it takes no more effort for the shovel to place the material into the truck next to it rather than onto the ground next to it.

BNSF next claims that the 42 CY off-highway hauler selected by Otter Tail is inappropriate because the vehicle is incapable of turning around in the 100-foot right-of-way width specified by

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152 BNSF's claim of very hard shale for all loose rock is totally unsupported.

153 The unit cost for the 1½ CY power shovel is shown on the same page as the unit cost for the 3 CY shovel, one line above the 3 CY shovel. See Otter Tail Opening Workpaper Vol. 6, p. 4338. The 1½ CY power shovel is listed as a power shovel and not the 75-ton crawler crane used in the Means Handbook as the basis for the 3 CY power shovel unit cost. See Otter Tail Rebuttal Workpaper Vol. 2, pp. 6193 to 6194.

154 See BNSF Reply at III.F-92.

Otter Tail. BNSF substitutes a 22 CY off-highway hauler for Otter Tail's 42 CY hauler, decreasing the hauling capacity by nearly 50 percent. This hardly seems efficient. The 42 CY hauler could turn around by simply executing a 3-point turn, if necessary.

BNSF added the cost for a bulldozer to spread the dumped materials for embankment.[155] This cost is unnecessary as the trucks are capable of spreading the material as it is dumped and the materials are further spread during the compaction process. Finally, as discussed above under common excavation, BNSF's exclusive use of the sheepsfoot roller is unwarranted.

On Rebuttal, Otter Tail has continued to use the Means Handbook unit costs presented on Opening, modified as discussed above. This results in a loose rock excavation cost of $6.37 per CY, an increase of $0.55 per CY (less than 10 percent) over opening.

(c) Solid Rock Excavation

On Opening, Otter Tail developed its solid rock excavation costs using the Means Handbook as it did with the other earthwork costs. Otter Tail included the costs to drill and blast the rock, excavate and load the blasted rock, haul it, spread it and compact it. Otter Tail then averaged the solid rock unit cost of $10.49 per CY and loose rock cost of $5.82 per CY together to reflect the fact that modern equipment is capable of ripping much of the rock classified as solid rock in the ICC Engineering Reports. This resulted in a unit cost of $8.15 per CY.[156]

On Reply, BNSF claimed that Otter Tail's solid rock unit cost was understated and Otter Tail did not include many cost items.[157] BNSF accepted Otter Tail's use of the average of the solid rock

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155 See BNSF Reply at III.F-93.
156 See Otter Tail Opening Errata electronic workpaper "OTRR Grading.xls."
157 See BNSF Reply at III.F-95 to III.F-100.

and loose rock unit costs but did not accept anything else. BNSF claims that Otter Tail's drilling and blasting costs reflects economies that would not be applicable to the construction of the OTRR. BNSF maintains that boulders would be generated from the blasting process that would either have to be blasted again or receive special handling and BNSF included costs for special handling. BNSF uses a hauling truck that handles half of the quantities handled by the truck selected by Otter Tail. BNSF also includes unnecessary costs for spreading. As a result of BNSF's modifications, BNSF calculates a cost of $21.46 per CY for solid rock which is reduced to $18.23 to $18.57 per CY when averaged with BNSF's loose rock unit costs of $15.00 to $15.68 per CY discussed above.[158] BNSF's modifications to the solid rock unit cost are improper.

First, BNSF's claim that Otter Tail's drilling and blasting unit costs are not representative of the OTRR construction is incorrect. Otter Tail based its drilling and blasting costs on the average of drilling and blasting over 1500 CY and bulk drilling and blasting.[159] BNSF claims that this is inappropriate because the OTRR averages only 6,300 CY of solid rock per mile. BNSF's average is irrelevant because it is merely a simple average of the total solid rock quantity for the OTRR divided by the route miles of the OTRR. It is totally incorrect to assume that the solid rock is distributed on an even basis along the route of the OTRR. For example, all of the excavation for the Orin Line was classified as common. The vast majority of the solid rock encountered on the OTRR (6.3 million CY, three-quarters of the 8.4 million CY total) occurs on the 249-mile line segment

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158 See BNSF Reply Errata electronic workpaper "IIIF2 OTRR GRADING_Errata.xls," worksheet "IIIF Unit Costs."

159 The bulk drilling and blasting unit cost used by Otter Tail is not the minimum as the cost is described as "average" in the Means Handbook. Furthermore, there is no indication that this unit cost pertains only to quarry operations as claimed by BNSF. The STB has agreed with the position taken by Otter Tail. See Duke-NS at 95; CP&L at 81-82; Duke-CSXT at 79.

between Jones Junction, MT and the Montana/North Dakota border.[160] On average, this equates to over 25,000 CY per mile. However, even this is misleading, because the solid rock would not be evenly distributed throughout the line segment but located in specific areas. Thus, BNSF's average of 6,300 CY per mile is meaningless. Otter Tail's use of drilling and blasting costs applicable to high-volumes is clearly appropriate.[161]

BNSF has not provided any support for its contention that boulders will be an issue for the OTRR. BNSF has simply asserted that the OTRR will be plagued by boulders and uses this assertion as the basis for requiring the OTRR to incur higher costs as a result. If the blasting required by the earthwork process is done correctly, the resulting rock will meet the 24-inch specification that BNSF cites from the WRPI construction specifications.[162] BNSF did not produce any evidence from any of its own projects supporting its position that the blasting had to be performed more than once or that special handling was required. As boulders will not exist after the blasting, BNSF's inclusion of special costs to handle boulders is unnecessary.

As discussed above under loose rock, Otter Tail's use of a power shovel is more appropriate than BNSF's backhoe; Otter Tail's use of the 42 CY hauler is appropriate; the use of dozers to spread the embankment material is unnecessary; and compaction by a combination of a vibrating roller and a sheepsfoot roller is more appropriate.

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160 On Opening, Otter Tail included a total of 8.1 million CY of solid rock in its earthwork calculations with 4.9 million on the line segment from Jones Junction, MT to Glendive, MT and 1.1 million on the line segment from Glendive, MT to the MT/ND border. See Otter Tail Opening Exhibit III-F-13. On Rebuttal, Otter Tail accepted BNSF's earthwork quantity modifications related to the line relocation around the Big Horn tunnel. This increased the solid rock quantity between Jones Junction, MT and the MT/ND border by 0.3 million CY.

161 Otter Tail's approach is consistent with that accepted by the STB. See Duke-NS at 95; CP&L at 81-82; Duke-CSXT at 79.

162 Mr. McDonald, who was in charge of the WRPI construction project, does not recall any rock being blasted twice, yet the resulting rock pieces were still 24-inches in diameter or smaller.

On Rebuttal, Otter Tail has continued to use the solid rock excavation unit cost contained in its Opening filing. However, as the unit cost applied to the solid rock quantities is an average of the loose rock and solid rock unit cost, Otter Tail's solid rock unit cost has increased from $8.15 per CY on Opening to $8.43 per CY on Rebuttal (an increase of less than four percent).[163]

(d) Borrow

On Opening, Otter Tail developed its unit cost for borrow using costs from the Means Handbook. On Reply, BNSF accepted Otter Tail's unit cost with two modifications. First, BNSF added costs for a bulldozer to spread the dumped materials prior to compacting. As discussed above under the unit cost for loose rock excavation, the addition of costs for a bulldozer is unnecessary because the material is first spread by the trucks as it is dumped and again as it is compacted. Second, BNSF used a sheepsfoot roller exclusively rather than in combination with a vibrating roller. As discussed previously, this is improper.

BNSF's modifications to the cost for borrow are unnecessary and merely inflate the OTRR's earthwork costs in direct violation of the Coal Rate Guidelines' requirement to develop the least-cost, most efficient stand-alone railroad. Otter Tail continues to rely on its Opening evidence methodology and unit cost.

(e) Summary of Earthwork Unit Costs

On Reply, BNSF relies heavily on the five highway construction projects (in only two locations) and its discussions with an equipment supplier and an unidentified general contractor as support for the oversized equipment that BNSF uses. However, one thing is conspicuously missing. The entire

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[163] See Otter Tail Rebuttal electronic workpaper "OTRR GRADING Rebuttal.xls."

purpose of a stand-alone analysis is to estimate the costs that a hypothetical railroad would incur should it enter the market and serve the complainant's traffic. Nowhere in BNSF's Reply is there any discussion of BNSF's actual experience or costs associated with the various equipment types. BNSF's research stops at the equipment level.[164]

As discussed previously, BNSF has not provided any documentation showing the types of equipment used on any earthwork project on its system, including the four major recent earthwork projects noted earlier.[165] However, BNSF did provide some AFE's in discovery that contain contract costs for grading, albeit with no more detail than a total cost and a total quantity.[166] In addition, Otter Tail obtained some 2002 Wyoming, North Dakota and Montana Department of Transportation ("DOT") average bid information for excavation from each state's internet site.[167] Exhibit III-F-24 contains a comparison of BNSF's Reply and Otter Tail's Rebuttal average cost per cubic yard for earthwork with the average earthwork costs from the BNSF AFE's and the Montana and Wyoming DOT bids. The results are quite revealing.

BNSF's Reply average unit cost is $11.50 per cubic yard of earthwork. Otter Tail's Rebuttal average unit cost is $6.15 per cubic yard of earthwork. The average unit cost for earthwork from BNSF's AFE's for contract grading is $3.71 per cubic yard.[168] The average unit cost for earthwork

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164 As noted earlier, Otter Tail suspects BNSF does not present any data for its own projects because such data does not support BNSF's high costs as presented in this proceeding.

165 The construction of the Orin Line, the construction of the Eagle Butte Branch, the expansion of the Guernsey Yard and the daylighting of a tunnel near Guernsey, WY.

166 These fourteen AFE's cover five states (Wyoming, Colorado, Texas, New Mexico and Arizona) and the 1999-2002 time period. As only two AFE's are for a project in a state traversed by the OTRR, there was not enough information to use these earthwork unit costs in lieu of relying on the Means Handbook. However, the data is sufficient for the comparative purpose for which it is used here.

167 The BNSF AFE and Wyoming and Montana Bid information are included in Otter Tail Rebuttal Workpaper Vol. 2, pp. 6195 to 6221.

168 Otter Tail notes that the average cost from BNSF's AFE's would include, according to BNSF's specifications, costs for stripping, foundation conditioning and fine grading, which BNSF considers incidental to the earthwork

from the Wyoming, North Dakota and Montana DOT bids is $3.39 per cubic yard. These BNSF and DOT bid average values are one-third of the costs presented by BNSF on Reply and slightly more than half of the average cost used by Otter Tail on Rebuttal. Based on this comparison, it is very likely that Otter Tail has overstated the earthwork work costs for the OTRR as opposed to understating them as claimed by BNSF. This comparison also demonstrates the extent to which BNSF's costs are overstated.

In summary, Otter Tail's Rebuttal earthwork unit costs are more than adequate for the OTRR.

(f) Winter Construction

On Opening, Otter Tail did not include separate costs associated with winter construction. On Reply, BNSF included $43.85 million for additional equipment, $36.83 million for snow removal and $16.48 million for construction lighting for a total of $97.16 million in investment for winter construction during the months of November, December and January. BNSF's inclusion of these costs is unnecessary and unsupported.

BNSF develops the costs for all three of these items based solely on assumptions. For example, BNSF has included additional equipment based on adding two scarifiers and two large sheepsfoot rollers for every 10-mile section of the OTRR. BNSF has no support for how it determined the additional equipment required or the 10-mile length for the sections, nor has BNSF demonstrated that this will be necessary for every mile of the OTRR. The same is true for the snow removal costs. BNSF Reply at III.F-103 states "It is estimated that a snow removal crew will be needed at least every 10 miles...BNSF Engineering Consultants...estimated that snow removal crews would be

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costs when requesting bids from contractors.

needed on average for 20 days during the winter construction." (Emphasis added) There is no support for the 10-mile section length nor for the 20 days of snow. In addition, BNSF has provided no documentation that such costs have been incurred in actual projects.

The OTRR spans a rather large section of the west, traversing five states over its nearly 1300-mile length. Surely the weather will differ on various parts of the OTRR. Furthermore, a change in the assumptions significantly impacts the cost calculations. Changing the 10-mile sections to 20-mile sections halves the costs. Changing the 20 days to 10 days has the same impact. Reducing the additional machines from four machines to two also cuts the costs in half. Assuming that only half of the OTRR will require this additional equipment cuts the costs in half.

The OTRR's 30-month construction schedule has sufficient flexibility to accommodate a shifting of the grading activities should the need arise.[169] Soil analyses will be conducted during the engineering design phase of construction and, based on the results, the OTRR could decide, at that time, to accelerate the grading schedule and begin it sooner.[170] Conversely, there is a three month window at the end of the construction schedule that can be used if necessary.[171] A least cost, most efficient railroad would certainly make adjustments in the schedule before incurring these types of costs.

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169 In fact, the OTRR schedule is sufficiently long enough to accommodate changes in the schedule during any season, if necessary. Under the concept of unconstrained resources, the construction schedule only needs to be as long as the most demanding project. On the OTRR, the most demanding project is the Valley City Bridge which could be completed in a year.

170 Grading can begin soon after some of the right-of-way is acquired.

171 This three-month window is to allow for operational testing but the entire railroad does not have to be complete in order to begin testing. Testing can be started on those sections that are complete and finish up as the last sections are completed.

Finally, these types of costs, should they in fact become necessary, are precisely the types of costs that the contingency monies are intended to cover - unexpected and unknown costs.[172] BNSF's addition of costs based purely on unsupported speculation is improper[173] and erroneously increases the construction costs of the OTRR.[174]

(g) Fine Grading

On Opening, Otter Tail did not include a separate cost for fine grading. On Reply, BNSF included $22.34 million in investment for fine grading (for both the OTRR mainline and yards) on the basis that the WRPI specifications required it and the earthwork costs used by Otter Tail do not include fine grading of the subgrade or finishing of the slopes.

Fine grading is yet another example of BNSF including superfluous costs in the OTRR's investment base. As noted previously, the WRPI specifications were used as a guide for the construction of the OTRR, not an absolute. WRPI was designed and constructed to handle volumes considerably in excess of those handled by the OTRR. Therefore, the WRPI specifications were adjusted as necessary for the OTRR to reflect the OTRR's lower tonnage levels and the guidelines for a least cost, most efficient railroad. In any event, the earthwork unit costs used by Otter Tail reflect the excavation and the placement of embankment required by the OTRR and do, indeed, incorporate fine grading, as the last pass of the earthmoving equipment will shape the roadbed sufficiently for the placement of subballast. Any minor variations in the subgrade would be

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172 This is discussed in greater detail in Section III-F-11, infra.

173 Otter Tail notes that these types of costs do not appear in the grading discussions in any of the STB's (or ICC's) prior decisions.

174 BNSF's inclusion of speculative costs not only overstates the construction costs of the OTRR, it also increases the base investment against which the contingency, engineering and mobilization additives are applied, causing an even greater overstatement in construction costs.

addressed by the subballast placement in order to provide a sufficient surface for the track bed (this is also true with respect to the OTRR's yards). Otter Tail also notes that fine grading was not an issue in TMPA which involved some of the same trackage as the OTRR and where the BNSF's investment evidence was provided by one of the same witnesses as in this proceeding.[175] Fine grading costs were also rejected by the STB in several recent decisions.[176]

Based on the above discussion, the inclusion of separate costs for fine grading is unnecessary and serves only to inflate the investment costs of the OTRR. Therefore, Otter Tail has not included separate costs for fine grading in its rebuttal development of investment costs for the OTRR.

c. Lateral Drainage

On Opening, Otter Tail included $0.90 million in investment for lateral drainage. This amount was based on quantities extracted from the ICC Engineering Reports and BNSF track charts applied to unit costs from the Means Handbook.[177]

On Reply, BNSF included $1.45 million in investment for lateral drainage, a difference of $0.55 million. BNSF accepted Otter Tail's quantities but claimed Otter Tail's unit cost was understated because it: (1) excluded the cost for trenching; (2) excluded the cost for geotextiles; (3) was based on the wrong pipe material; and (4) was based on the wrong backfill material and compaction technique. Furthermore, BNSF included, in its workpapers, a 19-page explanation of its lateral drainage installation process.

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175 See TMPA at 123 (n. 206) for reference to Mr. Albin.
176 See Duke-NS at 95; CP&L at 82; Duke-CSXT at 80.
177 See Otter Tail Opening at III-F-24 to III-F-25.

BNSF's criticisms have no merit. The cost for trenching is not necessary because the pipe will be installed during the initial grading process.[178] BNSF makes the assertion that the cut would need to be over-excavated by four feet to allow the earthmoving equipment to operate efficiently, but provides no support for this assertion. BNSF also claims that Otter Tail made no allowance in its earthwork costs for such over excavation. Otter Tail disagrees. BNSF did not provide any demonstration that the earthwork quantities contained in the ICC Engineering Reports and the Orin Line construction documents do not include all the required excavation. As lateral drainage and culverts were installed on these lines when they were first constructed, it is reasonable to assume that all the required earthwork quantities have been included (which means the costs have been included as well). Otter Tail has moved all the earth that was moved during the initial construction of these rail lines and then some with the adjustment for modern design.

Geotextiles can be used in this process but are not required and Otter Tail maintains that they are not necessary. Furthermore, BNSF states that Otter Tail used the wrong pipe material and the wrong backfill material and compaction technique but does not say why with regard to either claim. BNSF presents what it refers to as the "recommended procedure." This does not mean that Otter Tail's procedure is wrong, just that BNSF uses a different procedure.

Otter Tail continues to rely on its opening methodology in rebuttal. Otter Tail's methodology has been accepted by the STB in several recent decisions.[179]

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[178] The STB has agreed with Otter Tail's process in several recent decisions. See Duke-NS at 96; CP&L at 82; Duke-CSXT at 81.

[179] See PPL at 18; TMPA at 120; Duke-NS at 96; CP&L at 82; Duke-CSXT at 80-81.

d. Culverts

On Opening, Otter Tail included $26.86 million in culvert investment for the OTRR. Otter Tail based the required culvert quantities for the OTRR on information provided by BNSF in discovery supplemented by a review of publicly available BNSF track charts for the OTRR line segments in Minnesota. However, as BNSF did not provide culvert unit costs in discovery,[180] Otter Tail relied on unit costs contained in the Means Handbook.[181]

On Reply, BNSF included $27.73 million for culvert investment. As discussed below, BNSF takes issue with both Otter Tail's culvert quantities and unit costs.

i. Culvert Inventory

On Opening, Otter Tail relied on the culvert inventory provided by BNSF in discovery, supplemented by a review of (1) BNSF track charts produced in discovery for approach (lateral) culverts and (2) publicly available track charts for the OTRR line segments in Minnesota. These documents were used in conjunction with the OTRR's track requirements to develop a list of the culverts needed by the OTRR. Specifically, for each culvert, Otter Tail modified the required length based on the number of OTRR tracks over the culvert.

On Reply, BNSF makes three modifications to the OTRR's culvert inventory.[182] First, BNSF removed three 7-foot bridges from the bridge list and replaced them with culverts. Otter Tail accepts this modification. Second, three culverts were included in BNSF's bridge listing provided in discovery and BNSF moved them from the OTRR's bridge inventory to the culvert inventory. Otter

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180 Culvert unit costs were requested in Otter Tail's Request For Production Nos. 86 and 87.
181 See Otter Tail Opening at III-F-25 to III-F-26.
182 See BNSF Reply at III.F-110 to III.F-111.

Tail accepts this modification as well. Otter Tail does not, however, agree with BNSF's third modification of adding a culvert at Glendive, MT.

BNSF states that this culvert does not show up on the culvert inventory listing but does show up on the track charts. Otter Tail has reviewed BNSF's workpapers for this culvert and does not agree with BNSF that it should be included. BNSF's workpapers show this culvert is a pedestrian underpass. BNSF, however, did not provide any documentation that it paid for this culvert. The fact that it is not included in BNSF's culvert inventory would indicate that it is not part of BNSF's investment base.[183] Absent any evidence that BNSF paid for this underpass, Otter Tail has not included it on Rebuttal.

BNSF also overstated the culvert quantities for the OTRR due to its overstatement of the OTRR's passing and yard requirements. Otter Tail's rebuttal culvert quantities are based on the rebuttal track requirements of the OTRR.

ii. Culvert Unit Costs

Both Otter Tail and BNSF included three types of culverts - corrugated metal pipe ("CMP"), steel plate pipe ("SPP") and reinforced concrete box ("RCB"). BNSF agreed with Otter Tail's unit costs for the most part but claimed that Otter Tail excluded some cost items. First, BNSF claims that Otter Tail improperly excluded the costs for excavation and backfill for all three culvert types. Second, BNSF claimed that Otter Tail improperly omitted bedding costs for SPP culverts. Third,

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[183] The lists of units of property are addressed in 49 CFR 1201§ 2-19 which states "This list of units is established for the purpose of designating the units of property to be used in accounting for additions to and retirements and replacements of property." See Otter Tail Rebuttal Workpaper Vol. 2, p. 6224.

BNSF claimed that Otter Tail omitted the transportation costs for CMP culverts. Each of these issues are discussed below.

Otter Tail did not omit the costs associated with excavation and backfill for culverts. As the culverts are installed during the initial grading process, the costs for backfill and compaction are already included in the earthwork costs. Therefore, Otter Tail has not added the costs for backfill and compaction as to do so would result in a double-count of costs. Otter Tail's position comports with prior STB decisions.[184]

With respect to bedding costs for SPP culverts, Otter Tail reviewed its Opening calculations and determined that bedding costs were included for the CMP and RCP culverts but were inadvertently excluded for the SPP culverts. Otter Tail has corrected this in rebuttal.

Finally, Otter Tail does not agree with BNSF's inclusion of transportation costs for CMP culverts. The Means Handbook unit cost reflects the cost of material at the job site, meaning that transportation has already been included.[185]

iii. Summary of Culvert Costs

Based on the inventory modifications noted above and the adjustments to the SPP culvert unit cost described above, rebuttal culvert investment for the OTRR equals $27.03 million.

e. Other

i. Drainage Ditches

On Opening, Otter Tail included trapezoidal drainage ditches 2 feet wide and 2 feet deep.[186] This specification has been accepted by the STB in several recent decisions[187]

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184 See PPL at 19; FMC at 123.

185 See Otter Tail Rebuttal Workpaper Vol. 2, p. 6227. Otter Tail notes that it included transportation costs for the RCB culverts (also based on prices in the Means Handbook) which results in an overstatement; however, Otter Tail has not removed these costs from its rebuttal presentation.

186 See Otter Tail Opening at III-F-26 to III-F-27.

187 See WPL at 82-83; PPL at 19; TMPA at 116; Duke-NS at 90; CP&L at 78; Duke-CSXT at 76.

On Reply, BNSF accepted Otter Tail's ditch specification but not without first criticizing Otter Tail and then stating that it accepted Otter Tail's design only because the STB had accepted the same design in three previous cases. BNSF maintains that the OTRR must have ditches with a minimum bottom width of 3 feet based on AREMA specifications or else the OTRR roadbed will require an inordinate amount of maintenance due to damage to the roadbed.

BNSF's claims are unfounded. First, AREMA specifications are merely guidelines, not requirements. Second, these guidelines are not location-specific and can certainly be adjusted based on the actual needs. Third, the OTRR is located in arid and semi-arid territory, meaning that precipitation is lower than normal, especially in arid territory. Fourth, BNSF did not submit any evidence demonstrating that it adheres to the specification it proposed. Lastly, and most importantly, Otter Tail's Opening workpapers show that BNSF does not, in fact, adhere to this specification. Otter Tail's engineering witnesses' field trip identified locations where BNSF's side ditches do not meet the BNSF's design specifications (but do meet OTRR's design specifications in terms of width).[188]

Based on the above, there is no justification whatsoever for BNSF to increase the maintenance costs of the OTRR for this alleged design deficiency since it is no different than what exists on BNSF today and BNSF has submitted no evidence showing damage to its own roadbed as a result of inadequate drainage ditch size. This is yet another example of BNSF requiring the OTRR to either be constructed to higher standards than the existing BNSF or to incur needless additional costs.

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[188] See Otter Tail Opening Workpaper Vol. 5, pp. 3394 to 3399.

ii. Retaining Walls

On Opening, Otter Tail included $80,961 for retaining walls on the OTRR based on the quantities of masonry and the quantities of cross ties, timber and pilings contained on the ICC Engineering Reports under the category of Protection of Roadway.[189] Otter Tail converted all of the quantities, with the exception of pilings, to cubic yards. Otter Tail applied the cost for gabions and pilings from the Means Handbook to the appropriate quantities.

On Reply, BNSF accepted Otter Tail's methodology in general but made five adjustments, resulting in retaining wall investment of $15.37 million. Specifically, BNSF (1) included additional quantities from the ICC Engineering Reports; (2) increased the quantities to allegedly reflect the OTRR's expanded roadbed width; (3) included additional quantities for retaining walls at Fargo; (4) selected a different cost from the Means Handbook for gabions; and (5) added installation costs for the gabions. Each of these criticisms is discussed below.

Otter Tail has reviewed its opening evidence workpapers and determined that some quantities from the ICC Engineering Reports were inadvertently excluded from the quantities used to develop the retaining wall investment. These additional quantities have been added in rebuttal.

Otter Tail does not agree with BNSF's adjustment to the retaining walls to allegedly account for the wider roadbed of the OTRR when compared to the roadbed width of the original line construction.[190] BNSF has assumed, at every retaining wall location, that the topography is such that the surrounding earth side wall is always going upward (in a cut) or downward (in a fill) as you move

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189 See Otter Tail Opening at III-F-27.
190 See BNSF Reply at III.F-114.

out from the center of the roadbed. This is simply not the case. BNSF's drawings in its workpapers are nice but they have no basis in reality.

The side retaining walls do not always increase; they may actually decrease or they may stay the same. The only way to tell for sure the impact on the retaining wall of increasing the roadbed width is to look at each and every retaining wall location and ascertain the surrounding topography. If the topography is sloping upward away from the roadbed, a wider roadbed would result in a taller retaining wall in a cut and a shorter retaining wall for a fill. However, if the topography is sloping downward away from the roadbed, the opposite would occur, i.e., a wider roadbed would result in a shorter retaining wall in a cut and a higher retaining wall in a fill. Finally, if the topography is flat, widening the roadbed would have no impact on the height of the retaining wall. BNSF provides no evidence that it both reviewed all existing retaining wall locations and also determined that in every instance the retaining wall would need to be enlarged.

Furthermore, BNSF assumes that the wider roadbed extends equally on each side of the track centerline and that there are retaining walls located on each side of the roadbed. BNSF has provided no support for this assumption either. If there is a location where a retaining wall is necessary, there is the possibility that the entire amount of the widened roadbed could be accommodated on the side where the retaining wall is not required, meaning that no adjustment in size is necessary. As is the case throughout BNSF's Reply evidence, BNSF here makes unsupportable assumptions that result in cost increases. Given that there are several scenarios where the retaining wall quantities could be decreased as well as increased, and BNSF has relied only on unsupported assumptions, Otter Tail submits that BNSF's 50 percent adjustment to retaining wall quantities is erroneous and therefore should be rejected.

BNSF also increases the retaining wall costs of the OTRR by adding retaining wall quantities for Fargo in addition to those shown on the ICC Engineering Reports. Fargo is located in valuation section NP-1-ND which has retaining wall quantities. BNSF did not demonstrate that the ICC Engineering Report quantities (for which both parties included costs) do not reflect the quantities for Fargo. Therefore, Otter Tail has not included these additional quantities in its rebuttal, instead continuing to rely upon the quantities shown in the ICC Engineering Reports.

BNSF criticized Otter Tail's selection of a cost for gabions from the Erosion and Sediment Control section of the Means Handbook and instead selected one from the Retaining Walls section of the Means Handbook. BNSF maintains that Otter Tail did not explain its selection of its unit cost and did not demonstrate that the gabions it selected would be able to structurally support the earth. Upon reconsideration, Otter Tail agrees with BNSF that stronger gabions would provide better support but Otter Tail disagrees with the unit cost selected by BNSF. BNSF selected the largest possible gabion, at 12 feet in length, (Means Handbook item number 2830-100-6080)[191] with a corresponding unit cost of $289 per cubic yard. However, a review of the Means Handbook shows that a few rows up are costs for gabions that are 6 feet in length (Means Handbook item number 2380-100-6020) that would be equally capable, i.e., the only difference is in the length, with a unit cost of $171 per cubic yard. Six-foot gabions would be equally applicable and, in fact, easier to manipulate and install. Therefore, Otter Tail has used the unit cost for six-foot gabions in its rebuttal calculations.

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[191] BNSF Reply at III.F-115 states that BNSF relied on item number 2830-100-6050, which is for 9-foot gabions, but BNSF Reply Errata electronic workpaper "IIIF2 OTRR GRADING_Errata.xls", worksheet "Unit Costs" uses item 2830-100-6080, 12-foot gabions, in the cost calculations. The 12-foot gabions have a higher unit cost than the 9-foot gabions.

Finally, Otter Tail disagrees with BNSF's inclusion of costs for the installation of the gabions consisting of costs for backfill and compaction. BNSF seems to believe that the gabions will be installed after the grading process while the OTRR would install them as part of the grading process and the costs for filling and compacting are already included.

Rebuttal investment for retaining walls for the OTRR equals $5.90 million.[192]

iii. Rip Rap

On Opening, Otter Tail developed rip rap quantities based on the ICC Engineering Reports and applied unit costs from the Means Handbook.[193] Total investment for rip rap for the OTRR equaled $11.51 million.

On Reply, BNSF included $14.91 million for rip rap. In BNSF's Reply, BNSF states that it accepted Otter Tail's methodology with one modification - BNSF added costs for transporting the granite rip rap to the OTRR railheads. BNSF's inclusion of transportation costs is improper because, as discussed supra in the culvert section, the Means Handbook unit cost used by both Otter Tail and BNSF includes material costs at the job site. BNSF's inclusion of transportation costs is a double-count.

Otter Tail has continued to rely on its Opening evidence methodology and unit cost resulting in rebuttal investment of $11.50 million for rip rap for the OTRR.[194]

iv. Utility Relocation

On Opening, Otter Tail included $1.02 million for utility relocation along the recently-constructed segments of the OTRR from Converse Yard to Donkey Creek and the five coal mine

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192 See Exhibit III-F-18.
193 See Otter Tail Opening at III-F-27 to III-F-28.
194 The slight decrease from opening is caused by the reduction in route miles for the OTRR.

branches[195] (including the OTRR-owned portions of the mine spurs). Consistent with prior STB decisions,[196] and the barrier to entry concept espoused by Coal Rate Guidelines, Otter Tail did not include utility relocation costs for the main lines of the OTRR west and north of Donkey Creek.

On Reply, BNSF agreed with Otter Tail's methodology and included $1.03 million based on Otter Tail's cost per mile applied to BNSF's calculation of the miles for the recently-constructed segments of the OTRR. The difference is caused by BNSF's overstatement of the route miles for the OTRR as discussed in Section III-B-1, supra.

On Rebuttal, Otter Tail continues to include $1.02 million for utility relocation.

v. Slope Stabilization (Topsoil Placing/Seeding)

On Opening, Otter Tail included $2.98 million in investment for topsoil placement and seeding. Otter Tail developed this using quantity information contained in the ICC Engineering Reports and the quantities and cost (indexed to 1Q02) from the Orin Line construction documents.[197]

On Reply, BNSF included $6.59 million for topsoil placement and seeding (including $35,000 for yard seeding). BNSF agrees with Otter Tail's methodology used to develop quantities for topsoil and the unit cost used by Otter Tail but calculates slightly higher quantities due to its overstated route miles. The remaining difference between BNSF and Otter Tail is caused by BNSF's inclusion of

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195 Reno Junction, WY to Jacobs Junction, WY (Reno Branch); Campbell, WY to Eagle Butte Junction, WY (Eaglke Butte Branch); Dutch, WY to Nerco Junction, MT (Decker Branch); Sarpy Junction, MT to Kuehn, MT (Kuehn Branch): and Nichols, MT to Big Sky, MT (Big Sky Branch). The branches are referred to collectively as the "five coal mine branches."

196 See WPL at 85; APS at 31; PPL at 19; TMPA at 121; Duke-NS at 99; CP&L at 85; Duke-CSXT at 83.

197 See Otter Tail Opening at III-F-28 to III-F-29 and Exhibit III-F-14.

separate costs for seeding.[198] BNSF's addition of separate seeding costs is improper and unsupported.

BNSF maintains that the Orin Line unit cost used by Otter Tail does not include seeding. BNSF claims that there was a separate contract for seeding yet did not produce any documentation supporting its claim. This issue was decided in WPL where the STB determined that the topsoil placement cost for the Orin Line included seeding costs (the position also held by the UP).[199] BNSF's position was also rejected in TMPA, where the STB held that it was improper to include seeding costs separately when they were already included in the cost used by the complainant.[200]

BNSF further maintains that Otter Tail's failure to include costs for topsoil placement and seeding for the entire OTRR right-of-way significantly increases the OTRR's maintenance costs by increasing the need for undercutting, shoulder ballast cleaning, and switch and crossing undercutting. BNSF's position is again off-target. Otter Tail included the costs for embankment protection based on what BNSF (and its predecessor railroads) incurred when these lines were originally built. This is consistent with stand-alone theory and consistent with the STB's ruling in TMPA.[201] Furthermore, BNSF fails to consider the likely possibility that natural growth along the embankment precluded erosion and other problems from affecting BNSF's predecessors when these lines were originally built.[202] Just because the OTRR does not incur a separate cost does not mean that the embankment is not protected. Therefore, BNSF's inclusion of additional maintenance costs is unnecessary.

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198 BNSF applies seeding costs to the same quantities it uses for topsoil placement plus an additional $35,000 for seeding yards. (See BNSF Reply Errata electronic workpaper "IIIF2 OTRR GRADING_Errata.xls", worksheets "IIIF_14Othr Cst" and "IIIF_12 Yards").

199 See WPL at 85 (n. 159).

200 See TMPA at 121-122.

201 Id.

202 In fact, the STB has previously found that seeding is a barrier to entry whenever natural growth occurs. See APS, 2 S.T.B. 367, 408; FMC at 120.

BNSF's inclusion of $35,000 for yard seeding is also improper. BNSF has provided no support for its contention that the OTRR's yards need seeding. To the extent that the BNSF's yards were seeded when originally constructed, the quantities would appear in the ICC Engineering Reports. As Otter Tail reflected the ICC Engineering Report quantities in its calculations, no additional costs need to be included.

On Rebuttal, Otter Tail continues to rely on its Opening evidence methodology and unit cost application, consistent with WPL and TMPA. Investment for topsoil placement and seeding for the OTRR equals $2.97 million.[203]

vi. Water for Compaction

On Opening, Otter Tail included $7.47 million for water for compaction based on quantities from the Orin Line and Eagle Butte Branch construction documents and a unit cost for water from the Wyoming Department of Transportation.[204] The Orin Line territory is classified as arid, and, therefore, the average gallons per cubic yard for the Orin Line were applied to the arid portions of the OTRR. The Eagle Butte Branch territory is classified as semi-arid, and, therefore, the average gallons per cubic yard for the Eagle Butte Branch were applied to the semi-arid portions of the OTRR.

On Reply, BNSF included $16.30 million for this item. BNSF accepted Otter Tail's unit cost and its methodology for the Orin Line and Eagle Butte Branch portions of the OTRR,[205] but rejected Otter Tail's quantity calculations for the remaining portions of the OTRR.

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203 See Exhibit III-F-25.

204 See Otter Tail Opening at III-F-29 to III-F-30.

205 There is a minor difference in cost calculations caused by the difference in OTRR route miles discussed in Section III-B-1, supra.

While acknowledging that Otter Tail's methodology of relying on the amount of rainfall for a given region is appropriate, BNSF criticizes Otter Tail's methodology, stating that Otter Tail ignored the ability of the soil to hold that moisture content. BNSF claims that its field trip observations determined that substantially more water would be required[206] and "using standard engineering formulae,"[207] BNSF calculates a significantly higher amount of water per cubic yard.

BNSF admits that Otter Tail's methodology has validity. Otter Tail also finds it interesting that, on one hand, BNSF is constantly complaining about the amount of the water in the soil, which in BNSF's view mandates significant foundation conditioning, yet, on the other hand, BNSF is placing a huge amount of water into the soil. These conflicting positions each serve to increase the construction costs of the OTRR.

BNSF's calculations are unsupported. There is no evidence of any soil moisture analyses undertaken by BNSF.[208] BNSF's "standard engineering formulae" hinges on two unsupported assumptions. First, BNSF assumes that the soil has a 2% soil moisture content. Second, BNSF assumes that the pounds per cubic foot of soil are based on "native silty sand soils."[209] These assumptions could easily be modified to produce the same results as Otter Tail's calculations.

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206 This is in opposition to BNSF's previous claim that the OTRR will incur significant costs for foundation conditioning in order to remove water from the soil. See BNSF Reply at III.F-63.

207 See BNSF Reply at III.F-120.

208 Such analyses would be undertaken as part of the design engineering process accounted for in the engineering costs of the OTRR.

209 See BNSF Reply Workpaper BNSF.RP.WP.III.F-0383. This is a far cry from the clay soils which BNSF uses as support for its high earthwork unit costs.

Otter Tail continues to rely on its opening methodology, which is based on the actual amount of moisture received by each portion of the OTRR (rather than unsupported assumptions) and the correct route miles, and includes $7.49 million in investment for water for compaction.[210]

vii. Road Surfacing

On Opening, Otter Tail included $4.93 million in investment for surfacing detour roads during the construction of the OTRR.[211] In accordance with prior STB decisions, OTRR included the costs associated with only those roads located between Converse Yard and Donkey Creek and on the five coal mine branches, i.e., the recently constructed sections of the OTRR.[212] Otter Tail's costs for road surfacing are based on the amount of road surfacing for detours required during the construction of the Orin Line and the Eagle Butte Branch and unit costs developed from the Means Handbook.[213]

On Reply, BNSF included $5.39 million for surfacing detour roads over these same line segments.[214] BNSF accepts Otter Tail's methodology with two modifications. First, BNSF makes a slight change in the route miles for the OTRR trackage.[215] Second, BNSF adds an additional $0.43 million for asphalt paving on six (6) unidentified detour roads.

BNSF's addition of paving costs is unnecessary. First, while paving is certainly an option, BNSF did not demonstrate that it is a requirement. The OTRR is certainly not obligated to construct everything in the same manner as was done on the Orin Line. Furthermore, road detours during the

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210 See Exhibit III-F-25.
211 See Otter Tail Opening at III-F-30.
212 See FMC at 120; WPL at 35; PPL at 20; TMPA at 122-123; Duke-NS at 90-91; CP&L at 86; Duke-CSXT at 84.
213 See Otter Tail Opening Exhibit III-F-14.
214 See BNSF Reply at III.F-120 to III.F-122.
215 As discussed previously, BNSF has overstated the route miles of the OTRR. BNSF includes 180.6 route miles for the newly-constructed segments while Otter Tail includes the correct amount of 179.7 route miles.

construction of WRPI were not paved.[216] Second, BNSF did not justify why paving was needed at these particular six (6) crossings. A review of the Orin Line construction documents reveals that the paving was done for only one crossing and this crossing is not located on the OTRR.[217] As noted above, however, asphalt is not a requirement.

In addition to these amounts for road surfacing, BNSF, on Reply, also included an additional $18.37 million for an array of elaborate, expensive and unnecessary detour systems including lane channelization detour systems, a temporary detour road and alternate route detour systems for the OTRR. BNSF's addition of these expenses is improper because these costs are for road detours outside of the recently constructed segments between Eagle Butte Junction and Converse Yard. BNSF has not shown that it incurred these expenses or that these expenses are necessary. In fact, as noted earlier, the STB has consistently rejected these types of costs because the STB considers them a barrier-to-entry.[218] Otter Tail believes that these costs should again be rejected by the STB for this reason. Each of these costs are described more fully below.

On Reply, BNSF included $15.38 million for 179 lane channelization detours at certain crossing sites where BNSF claims detours are required along the OTRR. BNSF calculated the unit cost of $85,928 per crossing area based upon nothing more than estimates of the number of signs, number of barrels, number of barricades, yards of asphalt and feet of pavement marking required and unit costs from the Means Handbook. BNSF also included $200,695 for a single temporary detour road. BNSF calculated the unit cost based upon assumptions concerning a typical section of detour road,

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216 As noted at the beginning of this Section III-F, Otter Tail's chief engineering witness, Mr. McDonald, was in charge of the WRPI construction project.

217 The crossing where asphalt was used is near Bill, WY at MP 85 which is south of the OTRR's Converse Yard (MP 70).

218 See, e.g., Duke-CSXT at 84.

unsupported estimates of quantities for earthwork, road materials, guard rails, signs and barrels and unit costs from the Means Handbook. Finally, BNSF includes $2.79 million for alternate route detours at 422 crossing sites where BNSF claims detours are required along the OTRR. BNSF calculated the unit cost of $6,609 per crossing area based upon unsupported estimates of the number and type of signs and barricades required and unit costs from the Means Handbook. BNSF does not explain why some locations require the very expensive lane channelization detour while other locations only require the much less expensive alternate route detour.

All of these detours are located on OTRR line segments other than the newly constructed rail lines and the STB has previously rejected these types of costs.[219] Furthermore, BNSF has provided no evidence that it (or any of its predecessors) incurred these types of expenditures for the rail lines other than the newly constructed rail lines.

The additional costs included by BNSF associated with various detour systems are neither necessary nor required. On Rebuttal, Otter Tail includes $4.91 million in investment for surfacing detour roads.

viii. Environmental Mitigation

On Opening, Otter Tail included $1.40 million for environmental mitigation based on a unit cost from FMC applied to the route miles of new construction of the OTRR from Converse Yard to Donkey Creek and the five coal mine branches.[220] On Reply, BNSF accepted Otter Tail's cost per route mile, but applied it to BNSF's calculation of the route miles for these segments, resulting in $1.41 million in investment. As discussed in Section III-B-1, supra, BNSF has overstated the miles

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219 See, e.g., Duke-CSXT at 84.
220 See Otter Tail Opening at III-F-30.

for these segments. On Rebuttal, Otter Tail continues to rely on its opening calculation of $1.40 million for environmental mitigation.

ix. Land for Waste Quantities

On Opening, Otter Tail assumed that 30 percent of the excavated quantities would be wasted and included $0.35 million for land for waste quantities. Otter Tail's calculation was based on an assumed depth of 15 feet (24,200 CY per acre),[221] resulting in the need for 923 acres, and a land cost of $385 per acre.

On Reply, BNSF accepted Otter Tail's 30 percent waste estimate and its cost of $385 per acre. However, BNSF calculated a need for 1,673 acres for wasted material resulting in a total cost of $0.64 million. BNSF's estimate is grossly overstated.

Part of the difference in the acres required is caused by BNSF's overstatement in the earthwork quantities for yards, combined with the earthwork quantities for BNSF's excessive set-out track (both of which have been discussed previously). However, the biggest difference is caused by the method in which BNSF calculates the number of CY of waste material per acre of land. BNSF claims that Otter Tail would have to build retaining walls 15-feet high around each acre of waste land. BNSF states that, rather than build the costly retaining walls, it adjusts the quantities per acre to reflect a 1.5:1 side slope. BNSF's calculation reduces the number of CY per acre from 24,200 to 14,300, a reduction of over 40%.

Based on a review of BNSF's Reply workpaper BNSF.RP.WP.III.F-0392, Otter Tail determined that BNSF's calculations are based on the assumption that the waste land is a narrow strip,

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[221] 43,560 SF per acre x 15-foot depth ÷ 27 CF per CY.

apparently next to the right-of-way, though BNSF never explains its assumption. BNSF assumes that each acre of waste land is 55 feet wide and 796 feet long and is flat. Using a 1.5:1 slope, BNSF assumes slopes for 22.5 feet on either side, leaving a distance of only 10 feet wide capable of holding waste material 15 feet deep. Changing BNSF's length and width assumptions in its formula has a considerable impact on the amount of CY that an acre can hold. For example, if the width is doubled to 110 feet and the length is adjusted accordingly to 396 feet, an acre can hold 19,250 CY. If one assumes that the acre is square, the amount increases to 21,858 CY.[222]

BNSF provides no justification for its configuration of long narrow waste areas, apparently adjacent to the right-of-way. There is no need for them to be narrow or adjacent to the right-of-way or flat. The unit costs for hauling used by Otter Tail and BNSF include round-trip hauls of at least a half-mile. Furthermore, many of the waste locations would be larger than 1 acre and would be locations where a depression is being filled rather than a pile being made, enabling the location to handle the 24,200 CY per acre used by Otter Tail.

As demonstrated above, BNSF's calculations are improper. Otter Tail has continued to rely on its opening methodology to calculate the cost for land for waste materials. Otter Tail's rebuttal cost for this item is $0.35 million.[223]

x. Donkey Creek and Glendive Yard Paving and Drainage

On Opening, Otter Tail included $2.16 million for yard road paving and $2.71 million for drainage (for a total of $4.87 million) associated with the inspection roads in Donkey Creek Yard

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222 See Otter Tail Rebuttal Workpaper Vol. 2, p. 6236 for this calculation.
223 See Exhibit III-F-25.

and Glendive Yard.[224] On Reply, BNSF included $10.58 million for yard road paving, $21.32 million for yard drainage, $1.91 million for yard demolition and $1.50 million for relocating roadways for a total of $35.31 million for this item, over seven times the amount included by Otter Tail. BNSF did not accept Otter Tail's quantity for the paving or unit costs from the Means Handbook. Rather, BNSF redesigned the roads as if they were highways, added paved roads to all the OTRR yards, added costs for yard access roads, redesigned the OTRR's yard drainage systems and installed yard drainage covering the entire area of every OTRR yard. BNSF's costs are unnecessary and grossly overstated.

On Reply, BNSF included yard drainage at the Moran, Snowden, Fargo and Benson yards as well as Donkey Creek and Glendive. BNSF does not explain or demonstrate why drainage is necessary at the Moran, Snowden, Fargo or Benson yards. Drainage is only necessary for the paved inspection roads at Donkey Creek and Glendive. In addition, BNSF overstated drainage costs at all six yards by installing a drainage system under the entire yard. BNSF provided no justification that draining the entire yard area in any location is necessary nor did BNSF provide any demonstration that its own yards have drainage systems under the entire yard. Both of these unsupported assumptions simply serve to improperly increase the investment costs for the OTRR.

On Reply, BNSF also included costs for paved yard access roads at the Donkey Creek, Moran, Glendive, Snowden, Fargo and Benson yards. BNSF provided no reason why paved access roads would be required at these yards on the OTRR nor did BNSF provide any demonstration that its own yards have paved roads. Otter Tail's yards are located adjacent to the track and near existing roads.

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[224] See Otter Tail Opening Exhibit III-F-14.

In addition, this terrain would be relatively flat and easily accessible as a result of the grading performed when the yards were first constructed. Separate paved roadways constructed to highway standards are over-built and unnecessary.[225]

On Reply, although mentioned only in passing in the narrative,[226] BNSF included costs for two additional items related to the OTRR's yards - $1.91 million for "yard demolition" and $1.50 million for "relocated roadways from yards."[227] The "yard demolition" component included various cost items for three OTRR yards - $1.66 million for Glendive ($0.52 million for building demolition, $1.04 million for foundation demolition and $0.10 for roadway demolition); $0.20 million for Donkey Creek ($0.03 million for fence demolition and $0.17 million for roadway demolition); and $0.04 million for Fargo ($0.02 million for building demolition and $0.02 million for foundation demolition). The "relocated roadways for yards" component included various cost items for two OTRR yards - $0.87 million for Glendive ($0.43 million for borrow, $0.42 million for pavement, and $0.02 million for fine grading); and $0.63 million for Donkey Creek ($0.59 million for pavement, and $0.04 million for fine grading).[228] These costs are grossly overstated and, in fact, should not be included in the investment costs of the OTRR.

These costs items are a barrier to entry and, as such, should be excluded from the OTRR's investment base. As discussed, supra, roads were not prevalent when the lines of the OTRR were

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225 The level to which BNSF overbuilds its yard access roads is unnecesary. The BNSF-designed road is comparable to most interstates in the United States and includes 1.5 feet of compacted crushed stone, 6 inches of concrete and 2 inches of asphalt. (See BNSF Reply Errata electronic workpaper "III F 2 OTRR Grading_Errata.xls", Sheet "III F Unit Costs.")

226 See BNSF Reply at III.F-76 and III.F-78.

227 See BNSF Reply Errata electronic workpaper "IIIF2 GRADING_Errata.xls", worksheet "IIIF Summary".

228 See BNSF Reply Errata electronic workpaper "IIIF2 GRADING_Errata.xls", worksheets "Glendive", "Donkey" and "Fargo".

constructed. Therefore, BNSF, and its predecessors, did not incur costs to demolish, relocate and reconstruct roadways when rail yards were built. Furthermore, buildings were not demolished to make room for the rail yards built by BNSF and its predecessors. To the contrary, buildings, and entire towns in some cases, were constructed around the railroad and its yards. Consequently, BNSF, and its predecessors, did not incur costs to demolish buildings and foundations. As BNSF, and its predecessors, did not incur these costs, the OTRR should not be forced to incur them either.

Notwithstanding the fact that these costs should be excluded as a barrier to entry, BNSF has grossly overstated the costs. BNSF has included costs to demolish a fence at the OTRR's Donkey Creek Yard but has provided no support or explanation for these costs. BNSF has also included costs for demolishing, relocating and re-paving roads that cross the OTRR's Donkey Creek Yard. However, according to the FRA crossing list, these roads are not paved.[229] Therefore, the OTRR does not need to incur costs to demolish, and then re-pave, dirt roads. And even assuming the dirt roads required relocating, the OTRR would simply relocate them along the outer-most edge of the Donkey Creek Yard.

Roadway demolition and re-paving is also not necessary at the OTRR's Glendive Yard. According to BNSF's track charts, only two crossings are shown for this yard location and both are underpasses.[230] There is no need for the OTRR to demolish and re-pave roadways that do not cross its yard.

Building and foundation demolition at Glendive is also unnecessary. As discussed in Section III-F-1, supra, BNSF's Glendive yard acreage is not only unsupported but grossly overstated. As

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229 See Otter Tail Rebuttal Workpaper Vol. 2, p. 6229.
230 See Otter Tail Rebuttal Workpaper Vol. 2, p. 6232.

discussed in Section III-B-1, supra, BNSF has overstated the track requirements of Glendive Yard. The OTRR yard is not even as wide as BNSF's existing Glendive yard.[231] Consequently, there would be no building or foundation demolition required.

For the above reasons, Otter Tail has not included any costs for yard demolition or relocated roadways. On Rebuttal, Otter Tail continues to include $2.16 million for yard paving and $2.71 million for drainage costs[232] for the inspection roads at OTRR's Donkey Creek and Glendive yards only.

xi. Site Access

On Opening, Otter Tail did not include separate costs for site access. On Reply, BNSF included $3.83 million, claiming that OTRR would need to construct roads to access all the control points of the OTRR and the bridge locations.[233]

As discussed, supra, the inclusion of separate costs for access roads is improper. Otter Tail has included access roads to the extent they exist (as reflected in the earthwork quantities); 4-wheel drive maintenance vehicles will be able to navigate the terrain directly adjacent to the track along much of the OTRR; and contractors and vendors would be able to access the OTRR using cross roads and parallel roads and, if necessary, access through an adjacent landowner's property (with their permission). BNSF did not demonstrate that the access roads it proposes actually exist and were

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231 See Otter Tail Rebuttal Workpaper Vol. 2, pp. 6233 to 6234.

232 Otter Tail notes that its $2.71 million for yard drainage costs compares favorably to the yard drainage costs accepted by the STB in its recent decisions. See Duke-NS at 96 ($1.1 million); CP&L at 83 ($0.9 million); Duke-CSXT at 81 ($1.17 million exclusive of Fayette Yard).

233 See BNSF Reply at III.F-57 to III.F-58 and Reply Errata electronic workpaper "III F 2 OTRR GRADING_Errata.xls," worksheets "BridgeRds" and "AccessRds".

constructed (and paid for) by the BNSF. Finally, the inclusion of additional quantities and costs for access roads has been rejected by the STB.[234]

xii. Summary

In summary, as demonstrated above, BNSF has grossly overstated the roadbed preparation costs for the OTRR. As shown in Table III-F-10 at the beginning of this section, BNSF's investment of $1,513.52 million for roadbed preparation (including $27.73 million for culverts) is over two times higher than Otter Tail's rebuttal investment of $661.43 million (including $27.03 million for culverts). This difference is largely driven by BNSF's governing principle of constructing the highest cost stand-alone railroad (with no concern for efficiency) rather than the Coal Rate Guidelines' requirement of a least cost, most efficient stand-alone railroad.

3. Track Construction

On Opening, Otter Tail included $869.02 million for track construction. On Reply, BNSF included $1,105.50 million for track construction. Table III-F-11 below compares Otter Tail's Opening, BNSF's Reply and Otter Tail's Rebuttal investment costs for track construction.

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[234] See TMPA at 117; Duke-NS at 90-91; CP&L at 78; Duke-CSXT at 76.

Table III-F-11

Comparison of OTRR Track Construction -

Otter Tail Opening, BNSF Reply and Otter Tail Rebuttal - 1Q02

($ In Millions)

	Item	Otter Tail Opening	BNSF Reply	Otter Tail Rebuttal	BNSF Reply Over/(Under) Otter Tail Rebuttal
	(1)	(2)	(3)	(4)	(5)
1.	Geotextiles	$0.33	$1.38	$0.34	$1.04
2.	Ballast	63.80	68.88	64.11	4.77
3.	Subballast	38.27	121.36	38.83	82.53
4.	Cross ties	141.38	157.45	159.44	(1.99)
5.	Rail (Incl. welds and comp. joints)	191.38	219.24	193.82	25.42
6.	Turnouts (incl. all components)	42.34	67.71	44.49	23.22
7.	Rail lubricators	6.35	4.35	4.21	0.14
8.	Tie plates, clips, spikes, anchors, derails and wheel stops	63.26	70.41	70.26	0.15
9.	Material transportation	109.30	120.09	112.18	7.91
10.	Track Construction Labor	212.61	274.63	276.70	(2.07)
11.	Total	$869.02	$1,105.50	$964.38	$141.12

Each of the components of track construction shown in Table III-F-11 above are impacted by the number of track miles required for the OTRR. As discussed previously, there is a slight difference between BNSF's and Otter Tail's computations of track miles. BNSF has overstated the OTRR's route miles, and the miles of set out tracks and yard tracks but off-set that increase by its improper reduction of the passing siding miles required between Converse Yard and Donkey Creek. The net result is BNSF's track miles are four miles less than Otter Tail's in Opening and 13 miles less than Otter Tail's Rebuttal total. This minor difference has little impact on the track construction

costs of the OTRR. However, there are several differences between Otter Tail and BNSF related to quantity calculations (unrelated to track miles) and unit costs. Each of the components of track construction shown in Table III-F-11 is discussed below.

a. Geotextiles

On Opening, Otter Tail included $0.33 million for geotextile fabric placed under the turnouts of the OTRR.[235] On Reply, BNSF included $1.38 million for geotextiles. BNSF accepted Otter Tail's unit costs but significantly increased the quantities of geotextiles.[236] The reasons for the quantity difference are discussed below.

First, BNSF overstated the number of turnouts due to its overstated yard track and the unnecessary addition of a second turnout to every set-out track.[237]

Second, BNSF increased the amount of geotextile under each turnout by extending the length of the turnout to include the ten transitions ties added by BNSF. As discussed in the tie section infra, the transition ties are unnecessary and so is the geotextile that BNSF includes under them. BNSF has not provided any evidence that all of its turnouts have geotextile fabric in this manner.

Third, BNSF increases the amount of geotextile fabric under each turnout to account for the roll size in which the fabric is supplied. Apparently, BNSF has never heard of the "cut-to-fit" concept.[238]

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235 See Otter Tail Opening at III-F-32.

236 See BNSF Reply at III.F-129 to III.F-133.

237 Otter Tail has accepted BNSF's inclusion of 101 SY of geotextile fabric in total for the two diamond crossings on the OTRR. See BNSF Reply at III.F-131, note 125. This adds $186 to the OTRR's investment costs. Otter Tail notes, however, that BNSF double-counted the geotextiles for the two diamond crossings. BNSF multiplied the 101 SY quantity for two crossings times the unit cost and then multiplied that result times two crossings again. See BNSF Reply Errata electronic workpaper "III F OTRR Construction_Errata.xls", worksheet "Total Cost", cells I31, J31 and K31.

238 In addition, BNSF accepted the Means Handbook unit cost used by Otter Tail which is a cost per square yard including all labor and material for installation. Any costs associated with cutting the fabric would be included in the Means Handbook unit cost.

Fourth, BNSF includes geotextile fabric under all road crossings. Otter Tail does not believe that geotextiles are necessary under road crossings. Geotextiles were not installed under the road crossings on WRPI. BNSF submits a study to support its position, but the study refers to the impact of "heavily loaded trucks" at a location nowhere near the OTRR. BNSF has not submitted any figures on the number of "heavily loaded trucks" that would be using the OTRR's road crossings. Furthermore, BNSF has provided no evidence that it has installed geotextiles under the road crossings on the rail lines of the OTRR.[239]

Finally, BNSF adds geotextile fabric for 5% of the OTRR between Bismarck, ND and Big Stone, SD. In support of this, BNSF includes in its workpapers a two-page discussion of why geotextile fabric is necessary for this portion of the OTRR.[240] A review of this workpaper reveals several flaws in BNSF's thinking. The workpaper states that there are several drainage-related items listed on the ICC Engineering Reports for the applicable valuation sections including items such as lateral drainage pipes. These are the same items that Otter Tail extracted from the ICC Engineering Reports, that BNSF accepted, and for which both parties included costs under the heading of lateral drainage. BNSF's inclusion of geotextile costs results in a double-count of the costs required to address the drainage issues for this portion of the OTRR. Furthermore, there is no support for BNSF's arbitrary 5% figure, no identification of location-specific placing of the geotextiles, no evidence of referenced soils analyses and no demonstration that BNSF currently has geotextile fabric

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239 The STB has previously addressed this issue for a portion of the OTRR route. See PPL at 21 where the STB stated "Because the Campbell-to-Huntley Line was in place prior to the construction of area highways, and because BNSF has not shown that is has incurred any costs associated with the installation of geotextile fabric at crossings on this line, we exclude the cost for geotextiles at highway grade crossings".

240 See BNSF Reply workpapers BNSF.RP.WP.III.F-0456 and 0457.

in place for any portion of this section of the OTRR. For all of the above reasons, OTRR rejects BNSF's inclusion of geotextiles for 5% of the line between Bismarck and Big Stone.

Otter Tail continues to rely on its Opening methodology (adjusted to include the additional geotextile fabric for the two diamond crossings) to determine the geotextile costs for the OTRR. [241] Total rebuttal geotextile investment for the OTRR equals $0.34 million.

b. Ballast and Subballast

i. Ballast

On Opening, Otter Tail included $63.80 million for ballast. Otter Tail specified a twelve-inch layer of ballast for heavy density mainline and passing track, a nine-inch layer of ballast for light density mainline and passing track[242] and a six-inch layer for yard track. Otter Tail's unit cost was a weighted average unit cost based on the quantities from each ballast source and cost information provided by BNSF in discovery.[243]

On Reply, BNSF included $68.88 million for ballast. BNSF states that it accepted Otter Tail's specifications[244] but BNSF adjusted the unit cost. BNSF also added costs for ballasting in cold weather.[245] These two issues are discussed below.

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241 Otter Tail further notes that any increase in costs caused by increased geotextile fabric requirements would be covered by the monies set aside for contingencies.

242 The OTRR light density segments are the mainline from Fargo, ND to Benson, MN and the Kuehn, Big Sky and Big Stone Branches.

243 See Otter Tail Opening at III-F-32 to III-F-33.

244 BNSF made one change to tie requirements that requires a change to the ballast quantities that BNSF did not make but Otter Tail does make in rebuttal. Specifically, BNSF changed the tie specification (and size) for the Fargo, ND to Benson, MN light density line segment of the OTRR. Otter Tail accepts BNSF's tie specification change but correctly modifies the ballast quantity calculation for this line segment to reflect the larger amount of ballast displaced by the larger tie.

245 See BNSF Reply at III.F-133 to III.F-136.

REDACTED

On Opening, Otter Tail developed a weighted average unit cost for ballast based on the quantities obtained from various ballast sources and cost information provided by BNSF in discovery. On Reply, BNSF increases the ballast unit cost from $ per cubic yard in Otter Tail's opening to $ per cubic yard by shifting the sources of the ballast. As discussed infra under material transportation, there is no need to re-source the OTRR's ballast as BNSF has done and, therefore, BNSF's unit cost adjustment is unnecessary and improper.[246]

BNSF also includes additional costs ($3.6 million) associated with ballasting in cold weather. As discussed supra in the roadbed preparation section, and infra in the contingency section, these costs are improper. BNSF has included this cost based entirely on speculation with regard to the weather for nearly half the year.[247] BNSF has not demonstrated that the OTRR will incur these costs, only that it might incur these costs. Costs incurred due to potential weather conditions are one of the many things which are accounted for with contingency monies. BNSF's approach is improper because it includes as many costs as possible that the OTRR may incur and then adds another 10% for contingencies. This approach is improper and should be rejected by the STB.

Based on the above, Otter Tail has continued to rely on its opening methodology to develop ballast costs for the OTRR. On Rebuttal, Otter Tail has included $64.11 million for ballast for the OTRR.

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246 As Otter Tail's ballast unit cost is a weighted average based on quantities from various sources, the minor change in the quantity of track on rebuttal results in a minor change in the weighted average unit cost for ballast from $9.93 per cubic yard to $9.95 per cubic yard.

247 BNSF's cost calculations for this item are for five months of the year. Otter Tail's chief engineering witness, Mr. McDonald, recalls that WRPI construction was interrupted due to cold weather for only one month during the winter.

REDACTED

ii. **Subballast**

On Opening, Otter Tail included $38.27 million for subballast. Otter Tail specified an eight-inch layer of subballast for heavy density mainline and passing track and a six-inch layer for the light density mainline and passing track as well as yard track. Otter Tail's unit cost was taken from cost information provided by BNSF in discovery.[248] On Reply, BNSF included $121.36 million for subballast. Minor differences are caused by the difference in track miles and BNSF's disagreement with Otter Tail's subballast side slope.[249] The remaining difference is caused by BNSF's overstated unit cost.

The subballast cost of used by Otter Tail[250] was taken from an AFE provided by BNSF in discovery for track work in Wyoming, one of the states traversed by the OTRR. On Reply, BNSF maintains that the unit cost does not include all the required costs. As support for its position, BNSF compares the phrase "in place" with the word "contract". BNSF asserts that "in place" indicates that installation is included. However, BNSF incredibly expresses ignorance as to what "contract" means in its own AFE. In fact, BNSF suggests that Otter Tail has the burden to show that "contract" does indeed include installation. If BNSF cannot interpret its own AFE, it is improper to expect Otter Tail to do so. Lastly, one of the AFE's relied on by BNSF does not included the supposedly crucial phrase "in place".[251]

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248 See Otter Tail Opening at III-F-33.

249 BNSF accepted Otter Tail's subballast specifications and per mile quantity calculations with one exception - BNSF disagreed with Otter Tail's 2:1 subballast side slope. Otter Tail agrees with BNSF that the side slope for subballast should be 1.5:1 and has made this modification to its rebuttal subballast quantity calculations.

250 When indexed to 1Q02, the unit cost See Otter Tail Opening Workpaper Vol. 6, p. 4489.

251 See BNSF Reply Workpaper BNSF.RP.WP.III.F-0541.

Otter Tail disputes BNSF's portrayal of this unit cost. BNSF did not provide any AFE's or other documents showing any other costs associated with subballast for the project utilized by Otter Tail. Furthermore, BNSF should not be allowed to impeach its own documents that it produced in discovery. This has been rejected by the STB in the past[252] and should be rejected here as well.

BNSF relies on other AFE's with higher unit costs to develop its subballast unit cost. BNSF's unit cost is improper and overstated. The AFE's utilized by BNSF include costs for subballast from Texas, Arizona and Colorado. The OTRR would not be obtaining its subballast from any of these locations, none of which are on the OTRR route, particularly when subballast is available from nearby locations along the route of the OTRR.[253] Furthermore, BNSF's ability to identify AFE's with higher costs is irrelevant. The purpose of the stand-alone analysis, pursuant to Coal Rate Guidelines, is to develop the costs for a least cost, most efficient system. Otter Tail adhered to this in developing the costs of the OTRR, and identified an economical cost for subballast from BNSF's own documents, while BNSF did not.

For the reasons discussed above, Otter Tail continues to rely on the subballast unit cost it used on Opening. On Rebuttal, Otter Tail has included $38.83 million for subballast investment.

c. Ties

On Opening, Otter Tail included $141.38 million in investment for cross ties. Otter Tail specified Grade 5 timber ties, 7"x9"x8'-6", spaced at 19.5 inches, for the heavy density mainline and passing sidings and Grade 3 timber ties, 6"x8"x8'-6", spaced at 21 inches, for the light density

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252 See WPL at 89 (pertaining to UP's attempt to change the rail price); FMC at 129 (pertaining to UP's attempt to increase the cost of electric locks).

253 BNSF Reply at III.F-137 states "BNSF Engineering Consultants found several aggregate suppliers ranging from large national companies to local operations that are available to supply materials for the OTRR, and concluded that subballast could be supplied using locally available materials from established sources."

mainline and passing sidings as well as yard and set-out tracks. Otter Tail based its unit costs on information provided by BNSF in discovery.[254]

On Reply, BNSF included $157.45 million for cross tie investment.[255] In addition to the minor difference in track miles, there are several other issues that account for the difference between Otter Tail and BNSF.

First, BNSF accepted Otter Tail's cross tie specifications, except that BNSF substituted Grade 5 ties for Grade 3 ties on the light density line between Fargo, ND and Benson, MN. Otter Tail accepts this modification on rebuttal in order to allow OTRR trains to travel at their designated speeds between Fargo and Benson.

Second, BNSF claims that Otter Tail understated its tie counts on Opening due to an error in Otter Tail's construction summary spreadsheet. Upon further review, BNSF is correct. There was an improper cell reference in Otter Tail's construction summary spreadsheet that resulted in tie counts being understated. This cell reference has been corrected in rebuttal.

Third, BNSF claims to have "corrected" Otter Tail's tie count calculation to exclude ties replaced by the installation of a turnout. BNSF is correct that Otter Tail did not make an adjustment to exclude the ties that would be replaced by the installation of a panelized turnout.[256] However, a review of BNSF's spreadsheet revealed that BNSF did not perform the calculation as described. Instead, BNSF removed ten regular cross ties for each turnout and installed ten transition ties. Furthermore, BNSF only applied this calculation to the number of set-out track and yard track

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254 See Otter Tail Opening at III-F33 to III-F-34.

255 See BNSF Reply at III.F-140 to III.F-142 as adjusted by BNSF's March 22, 2004 Errata.

256 Otter Tail notes that neither party adjusted the rail quantities that would also be eliminated by the installation of a panelized turnout.

turnouts and failed to include passing siding turnouts, connecting track turnouts and coal mine spur turnouts in its calculation.[257] As discussed below, Otter Tail does not accept BNSF's use of transition ties so Otter Tail does not accept BNSF's erroneous cross tie adjustment calculation.

Finally, BNSF places 10-foot transition ties ahead of each turnout point of switch and on road crossings. The use of 10-foot transition ties under road crossings and prior to turnouts is not necessary. The road crossings constructed by the OTRR in the PRB are lightly traveled at best and standard size ties provide both an adequate surface for the crossing material as well as sufficient lateral stability making larger ties unnecessary. The use of 10-foot ties instead of 8'6" ties instead of the ten (10) ties in advance of each switch was not done on WRPI. This is just one of many instances where BNSF relies on specifications (that may or may not be followed in actual practice) rather than real-world experience. Moreover, BNSF bases its conclusion of transition ties at road crossings and turnouts on AREMA specifications and the "BNSF Standard Plan". The AREMA specifications are labeled only for bridge and trestle approaches, not turnouts and road crossings.[258] Meanwhile, the "BNSF Standard Plan" says nothing about road crossings as if refers only to turnouts.[259] Based on Otter Tail's chief engineering witness' experience, the use of 10-foot transition ties is unnecessary on the OTRR[260] and Otter Tail has not included them in the rebuttal calculations.

BNSF also states that it accepts Otter Tail's unit costs for cross ties but that the unit costs exclude transportation which BNSF added separately. BNSF seems to be inferring that Otter Tail did not include such transportation costs. This is incorrect; Otter Tail included transportation costs

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257 BNSF added 10 transition ties for 535 turnouts yet removed 10 standard ties for only 279 turnouts (99 set-out track turnouts and 180 yard turnouts).

258 See BNSF Reply Workpaper BNSF.RP.WP.III.F-0553.

259 See BNSF Reply Workpaper BNSF.RP.WP.III.F-0552.

260 Otter Tail's position has been accepted by the STB. See PPL at 23.

for ties from the supplier to the OTRR construction staging locations.[261] Costs for transportation of ties from the staging locations to the installation locations are included in the work train costs that are part of the Track Labor and Equipment Costs.[262]

On Rebuttal, based on the modifications described above, Otter Tail has included $159.40 million for cross tie investment.

d. Track

On Opening, Otter Tail specified a combination of new and used 136-pound and 132-pound continuous welded rail ("CWR") for the OTRR and included $191.38 million for investment in rail (including welds).[263] On Reply, BNSF accepted Otter Tail's rail specifications but made adjustments to the quantities and unit costs resulting in $219.24 million in rail investment for the OTRR. Otter Tail has made some minor adjustments to quantities and unit costs on rebuttal and includes $193.82 million in rail investment for the OTRR. BNSF's adjustments and Otter Tail's modifications are discussed below.

i. Mainline

(a) New Rail

BNSF accepted Otter Tail's specifications but there is a quantity difference caused by BNSF's overstatement in track miles. This difference was discussed in Section III-B supra. With regard to unit costs, BNSF accepted Otter Tail's unit costs for 136-pound standard and premium rail (which came from BNSF in discovery)[264] but did not accept Otter Tail's unit costs for 132-pound standard

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261 See Otter Tail Opening electronic workpaper "OTRR Transportation.xls" and Otter Tail Rebuttal electronic workpaper "OTRR Transportation Rebuttal.xls."

262 See Otter Tail Opening Workpaper Vol. 6, p. 4502 and the Track Labor and Equipment discussion infra.

263 See Otter Tail Opening at III-F34 to III-F-35.

264 See Otter Tail Opening Workpaper Vol. 6, p. 4476.

and premium rail (which also came from BNSF in discovery).[265] For 132-pound rail, BNSF utilized supplier price quotes taken from Otter Tail's Opening workpapers.[266] Not surprisingly, the unit costs used by BNSF increase the rail investment costs of the OTRR.

Otter Tail's use of BNSF unit costs provided in discovery is proper, while BNSF's use of supplier price quotes needlessly inflates the OTRR's rail investment costs. BNSF claims that the unit costs it provided in discovery are not relevant because it has not purchased any 132-pound rail in recent years. Nonetheless, BNSF provided an electronic file in discovery entitled "Matl Price List Feb2002 #2.xls" which contained 2002 unit costs for 132-pound rail and Otter Tail relied on this information in developing its Opening evidence.[267] The fact that there are no quantities does not mean that the price is inaccurate. BNSF's feeble attempt to discredit its discovery data, and support its higher unit prices, is improper and should be rejected.

(b) Second-Hand Rail

On Opening, Otter Tail used 132-pound second hand ("SH") rail (welded into CWR) for some passing sidings and all yard and set-out tracks and developed the costs based on a price quote for rail in 39-foot lengths. Otter Tail also accounted for the cropping of 18 inches off each end of the 39-foot sections, prior to welding at the plant, by including enough rail to reflect the cropping. Otter Tail also included a scrap credit for the amount of rail cropped off the ends.[268]

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265 See Otter Tail Opening Workpaper Vol. 6, p. 4480.

266 The particular workpaper referenced by BNSF (Otter Tail Opening Workpaper Vol. 6, p. 4539) was included by Otter Tail only as additional support that the rail would be supplied from Pueblo, CO. Otter Tail did not rely on the supplier price quote on workpaper page 4539 because Otter Tail had a lower price from information provided by BNSF in discovery (i.e., workpaper page 4480).

267 Otter Tail printed out a portion of this file showing 132-pound rail costs. See Otter Tail Opening Workpaper Vol. 6, p. 4480.

268 See Otter Tail Opening Workpaper Vol. 6, pp. 4481 to 4482 and Opening Errata electronic workpaper "OTRR Construction.xls."

BNSF accepted Otter Tail's methodology and rail unit cost but added costs for unloading the SH rail, cropping it and reloading it onto rail trains after it has been welded. BNSF also disputed Otter Tail's scrap rail credit. With the exception of the costs for cropping, BNSF's adjustments are erroneous.

While Otter Tail agrees that the costs for cropping the rail were inadvertently omitted from its opening costs, Otter Tail does not agree that the costs for unloading the rail sticks and re-loading the welded rail are additional costs. The contractor being paid to lay the track is responsible for all handling of the rail and the costs are included in the track labor monies included by Otter Tail.[269]

BNSF also criticizes Otter Tail's scrap credit price (obtained from the internet)[270] by claiming that is invalid because it did not change for four months. Just because something does not change for four months does not mean that it is invalid.[271]

On Rebuttal, Otter Tail has added the costs for cropping the 132-pound SH rail but has continued to reflect its opening evidence scrap credit in its rebuttal cost calculations.

(c) Plant Welds

On Opening, Otter Tail developed the number of plant welds for the 132-pound SH rail based on the 36-foot section lengths (39-foot lengths after cropping) welded into 1,440-foot strings, or a total of 40 plant welds per string. For the unit cost, Otter Tail used a 1998 cost provided by BNSF in discovery indexed to 1Q02.

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269 The track labor costs reflect track construction from beginning to end, which would also include rail handling. The STB has agreed with Otter Tail's position in its recent decisions. See Duke-NS at 106; CP&L at 91; Duke-CSXT at 91.

270 See Otter Tail Opening Workpaper Vol. 6, p. 4482.

271 For example, the STB's RCAF index has been known to stay the same from quarter to quarter and no one has suggested that the RCAF is invalid for that reason.

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On Reply, BNSF claimed that Otter Tail erred in its calculation of the plant welds necessary for second-hand rail and understated the cost for the welds. BNSF is correct with regard to the number of plant welds, as Otter Tail overstated the number required per 1,440-foot string. Rather than 40 per string, there are only 39. Otter Tail has corrected this on rebuttal. There is also a slight difference between Otter Tail and BNSF regarding the total number of plant welds due to BNSF's overstated second-hand rail track miles for yards and set-out tracks. The difference in track miles was discussed in Section III-B-1, supra.

BNSF also objected to Otter Tail's unit cost claiming that it is a material price only (because it is from a "materials price list") and does not include labor. On Reply, BNSF included $171.49 per plant weld based on a quote from a welding company.

Otter Tail disagrees with BNSF's assertion regarding its unit cost. The workpaper used by Otter Tail (provided by BNSF in discovery) may be titled as a materials price list but that does not mean that the prices are only for materials. For example, another item listed on the same page is "average sign cost installed," which clearly includes labor.[272] However, the most persuasive demonstration against BNSF's increase of the weld unit cost is that its inclusion makes 132-pound SH rail the most expensive rail on the OTRR.[273] If this were indeed true, the OTRR would not use any 132-pound SH rail, but would, instead, use entirely new rail, as the sole purpose of using SH rail is to reduce the investment costs where appropriate.[274]

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272 See Otter Tail Opening Workpaper Vol. 6, p. 4476.

274 The discussion of field weld costs infra also addresses this issue of additional labor costs and how the welding costs used by BNSF are far in excess of any used in prior SAC cases.

On Rebuttal, Otter Tail continues to rely on its opening plant weld unit cost.

ii. Yard and Set-Out Tracks

(a) Yard Tracks

On Opening, Otter Tail specified 132-pound second-hand CWR for the OTRR's yards, except for the main lead tracks in the Donkey Creek and Glendive Yards where Otter Tail specified 132-pound new CWR. On Reply, BNSF accepted Otter Tail's specifications. The difference in rail quantities for the OTRR's yards is due to BNSF's overstatement of the track required, as discussed in Section III-B.[275] On Rebuttal, Otter Tail uses its opening specifications and the rebuttal amount of track for each yard.[276]

(b) Set-Out Tracks

On Opening, Otter Tail spaced roll-by hot bearing and failed equipment detectors ("FED") along the route of the OTRR. Otter Tail placed 600-foot stub-end set-out tracks (a turnout on only one end) on either side of the FEDs, one on each side in single track section and two on each side in double track sections.[277]

On Reply, BNSF criticized the design of Otter Tail's set-out tracks.[278] BNSF claims that these tracks must be extended by 1,400 feet and double-ended (a turnout at each end) in order to

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275 BNSF Reply at III.F-80 contains statements about a need to move portions of the OTRR's Moran Junction Yard 0.3 miles west. However, BNSF makes no demonstration that a change is necessary and a comparison of the stick diagrams, shown in BNSF Reply Exhibit III.B-1 at page 10, shows that BNSF has used the same mileposts as Otter Tail with no modification.

276 As discussed in Section III-B infra, Otter Tail has modified the car repair wye tracks at Donkey Creek and Glendive Yards and added I&I switching tracks to the Fargo Yard.

277 See Otter Tail Opening Exhibit III-B-1.

278 See BNSF Reply at III.F-149 to I-F-150.

accommodate maintenance-of-way work trains on the sidings with bad-ordered cars. BNSF's claim has no validity.

The maintenance-of-way work equipment cited by BNSF (rail grinding trains, rail pickup trains and ballast trains, most of which would exceed 2000 feet in any case) will be located on the track being maintained, not stored idle in sidings. Surfacing and tie gang equipment will be no longer than 400 feet, which still leaves sufficient room for a bad-ordered car. Bad-ordered cars will be repaired and removed within 24 hours in order to keep the set-out tracks clear. Any bad-ordered cars located on sidings with maintenance-of-way equipment will be a priority for the car repair contractor. The additional trackage (and turnouts) included by BNSF is of no benefit to the OTRR.

On Rebuttal, Otter Tail continues to rely on the number, configuration and placement of set-out tracks that it presented on Opening.[279]

e. Field Welds/Compromise Joints

On Opening, Otter Tail included the costs for the necessary field welds to construct the OTRR trackage. On Reply, BNSF accepts Otter Tail's methodology but not Otter Tail's field weld unit cost. BNSF also claims that Otter Tail neglected to include the necessary compromise joints when the rail changes between 132-pound and 136-pound.

BNSF makes the same argument with respect to the field weld unit cost that it made with respect to the plant weld cost, i.e., that the unit cost is for material only and does not include labor. Otter Tail obtained the field weld unit cost from the same source document as the plant weld unit

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[279] The set-out tracks are shown on Exhibit III-B-2 and are in the same location as on Otter Tail Opening Exhibit III-B-1 (as modified by Otter Tail's Opening Errata). However, in preparing its Rebuttal filing, Otter Tail discovered that six (6) set-out tracks which appeared on Exhibit III-B-1 were inadvertently excluded from its construction cost calculations. Otter Tail has corrected this on Rebuttal.

cost (but no indexing was necessary as BNSF provided a 2002 unit cost) so the same rebuttal as to the material-only contention discussed under plant welds applies equally here. Furthermore, the track installation cost per track mile is for the installation of track from start to finish, from distributing the materials to de-stressing the rail, which would include welding of the rail. Consequently, if one were to assume that there was additional labor required for the field weld, which Otter Tail does not agree with, it is included in the track installation cost.[280]

BNSF states that the two rail sections cannot be joined without a compromise joint and includes $25,215 in investment for compromise joints.

BNSF is incorrect. Compromise joints between 132-pound rail and 136-pound rail are unnecessary as they are close enough in size that they can be welded together.[281] As Otter Tail has included the cost of the field welds necessary to install the trackage of the OTRR, Otter Tail has not included investment for compromise joints.

f. Switches (Turnouts)/Heaters/Propane Tanks/Rail Crossings

On Opening, Otter Tail included $42.34 million in investment for turnouts, switch stands, switch heaters, railroad crossings and insulated joints.[282] On Reply, BNSF included $67.71 million for these same items.

The difference in investment is caused by: (1) differences in the number of turnouts and switch stands; (2) differences in the unit costs for turnouts, switch heater installation, and propane tanks;

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280 Otter Tail also notes that the parties in TMPA, in which BNSF was the defendant, agreed on a field weld cost of $50.68 each. See TMPA at 130.
See also Duke-NS (at 106), CP&L (at 92) and Duke-CSXT (at 91) where the STB accepted $55.25 as the unit cost for field welds.

281 According to Otter Tail's chief engineering witness, Mr. McDonald, a former Vice President-Engineering of CNW, this has been a practice on several railroads including the former CNW and the Belt Railway of Chicago.

282 See Otter Tail Opening at III-F-35 to III-F-36.

(3) BNSF's inclusion of additional insulated joints and (4) BNSF's inclusion of additional switch stands. Each of these items is discussed below.

BNSF has vastly overstated the number of turnouts needed by the OTRR. Otter Tail included 596 turnouts on Opening, while BNSF included 715 turnouts, a difference of 119. The primary difference is due to BNSF's overstatement in the number of yard tracks needed by the OTRR, BNSF's unnecessary addition of a second turnout to each of the OTRR's set-out tracks, and BNSF's unnecessary inclusion of a fueling facility at Mandan. All of these issues have been discussed previously. BNSF also claims that Otter Tail omitted several turnouts from its stick diagrams and BNSF added turnouts for new connections to the Red River Valley & Western Railroad at Cassellton, ND, to the JY track near Fargo and for a wye track at Snowden. Otter Tail identified eight turnouts that were omitted from its opening stick diagrams (these have been included in rebuttal) and has added the turnouts for the additional yard track at Fargo as well as two new connections at Cassellton and Fargo but not the wye track at Snowden.[283] On Rebuttal, Otter Tail has included a total of 635 turnouts for the OTRR.[284]

On Opening, Otter Tail used unit costs for turnouts that were provided by BNSF in discovery. On Reply, BNSF accepted Otter Tail's unit costs for turnouts but claims that Otter Tail omitted the installation costs. BNSF then added turnout installation costs to Otter Tail's unit costs based on a quote from a contractor.

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283 As discussed in Section III-B infra, a wye track at Snowden for trains to go east towards Minot, ND is unnecessary based on the extremely limited number of trains per year which go east that are interchanged with BNSF at Snowden and the distributed power configuration of these trains.

284 This includes the additional turnouts associated with the additional I&I switching tracks at Fargo Yard.

BNSF's addition of turnout installation costs is unnecessary and results in a double count of costs. Both Otter Tail and BNSF applied track labor costs to all the track miles of the OTRR with no adjustment for turnouts. Based on the length of a No. 20 turnout, this equates to a total of $10,343.[285] The track labor costs serve as a surrogate for the turnout installation cost. Furthermore, neither BNSF nor Otter Tail made any adjustment in rail or tie quantities to eliminate the rail and ties that are being replaced by the installation of a panelized turnout.[286] For a number 20 turnout, this equates to a total of $15,172.[287] In other words, both BNSF and Otter Tail have included a total of $25,515 in unnecessary costs at each No. 20 turnout location. This amount is roughly equal to the amount BNSF included for No. 20 turnout installation. Therefore, BNSF's inclusion of turnout installation costs is a double-count of costs.

On Opening, Otter Tail estimated the installation cost for a switch heater at $5,000 based on its engineering witness' experience. On Reply, BNSF rejected Otter Tail's cost and included $14,000 for switch heater installation. BNSF's estimate is not based on any cost documents. When the same methodology that Otter Tail used (and BNSF accepted) to develop its installation costs for failed equipment and hotbox detectors, allocation of labor based on material cost, is applied to switch heater installation, the result is switch heater installation costs of less than $3,000.[288] Otter Tail continues to rely on its Opening cost estimate of $5,000 for switch heater installation.

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285 See Otter Tail Rebuttal Workpaper Vol. 2, pp. 6239 to 6241.

286 BNSF claims to have made an adjustment to exclude the ties but, as discussed supra, BNSF's calculations did not make such an adjustment.

287 See Otter Tail Rebuttal Workpaper Vol. 2, p. 6239.

288 See Otter Tail Rebuttal Workpaper Vol. 2, pp. 6243 to 6249.

On Opening, Otter Tail estimated a cost of $1,000 for the propane tanks required by the switch heaters. On Reply, BNSF used an estimate of $1,100. BNSF's estimate is unsupported by any cost documents. Therefore, Otter Tail continues to rely on its Opening cost estimate for propane tanks.

On Opening, Otter Tail included costs for railroad at-grade crossings with the Canadian Pacific Railway System near Bismark, ND and Valley City, ND. On Reply, BNSF agreed that there were two crossings and accepted Otter Tail's unit cost so there is agreement on the number and cost.[289]

BNSF included a significantly higher number of insulated joints than Otter Tail. This is due to BNSF's overstated turnout counts and its improper inclusion of the costs for highway crossing protection devices on the OTRR main line segments west and north of Donkey Creek. BNSF's overstated turnout counts were discussed above and its improper inclusion of the highway protection devices on the OTRR main line segments west and north of Donkey Creek is discussed subsequently in this rebuttal narrative.

Finally, BNSF included a significantly higher number of switch stands than Otter Tail. This is due to BNSF's overstated turnout counts as well as its unnecessary inclusion of derails (as discussed infra).

On Rebuttal, Otter Tail has included $44.49 million in investment for turnouts, switch stands, switch heaters, propane tanks, insulated joints and at-grade railroad crossings.

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[289] BNSF disagrees with Otter Tail as to the specific location of these two crossings but this has no impact on the costs. Otter Tail accepts the locations as stated by BNSF. BNSF also states that it added installation costs but there is no difference in unit costs. As neither Otter Tail nor BNSF reduced the track miles of the OTRR to reflect these crossings, it is implicit that both Otter Tail and BNSF utilized the cost per track-foot for construction as indicative of the railroad crossing installation cost.

g. Other

i. Rail Lubricators

On Opening, Otter Tail included rail lubricators on all curves greater than 2 degrees at a total investment cost of $6.35 million.[290] On Reply, BNSF included $4.35 million for rail lubricators. The primary difference is caused by Otter Tail's inadvertent double-counting of the number of rail lubricators required at double track locations.[291] This has been corrected in rebuttal. The difference in rail lubricator counts on rebuttal is a result of BNSF's modifications to the OTRR's facility plan.

BNSF accepted Otter Tail's costs with one adjustment - BNSF included costs for a disposable environmental mat. BNSF did not demonstrate that it currently has such mats in place at each rail lubricator location. Furthermore, if the rail lubricators are working properly, there is no need for the mats as there should not be any excess grease. Otter Tail has not added the costs for the environmental mats in rebuttal as they are not necessary.

On Rebuttal, Otter Tail has included $4.21 million for rail lubricators.

ii. Tie Plates, Clips, Spikes, Anchors, Derails and Wheel Stops

On Opening, Otter Tail included $63.26 million in investment for tie plates, clips, spikes and anchors based on the specifications and patterns of Otter Tail's engineering witness and costs provided by BNSF in discovery and by suppliers.[292]

On Reply, BNSF included $70.41 million in investment for these four items plus derails and wheel stops. BNSF accepted most, but not all, of Otter Tail's specifications and unit costs. The

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290 See Otter Tail Opening at III-F-37 to III-F-38.

291 As noted in BNSF Reply at III.F-157 to III.F-158, Otter Tail inadvertently placed a double-track lubricator on each of the tracks in a double track curve.

292 See Otter Tail Opening at III-F-36 to III-F-37 and Opening Workpaper Vol. 6, pp. 4476, 4484 to 4486.

differences (other than the difference in track miles which impacts all quantities) are discussed below.

BNSF claims that Otter Tail understated the number of tie plates as a result of its understatement of the number of ties. As noted previously, there was an improper cell reference for tie counts and this has been corrected in rebuttal.

BNSF did not accept Otter Tail's use of lock spikes for Pandrol plates, as Pandrol no longer uses lock spikes, having replaced them with screw spikes. Otter Tail has accepted this modification and BNSF's unit cost.

BNSF claims that Otter Tail has understated its count of rail anchors by not including additional anchors on the third leg of all turnouts. Otter Tail included additional rail anchors for 200 feet on either side of a turnout on the main line only. The purpose of the additional rail anchors on the mainline was to account for the additional stresses caused by trains moving through the turnout (i.e., not taking the turnout) at high speeds. Additional anchors over the standard pattern are not needed on the third leg of the turnout as the stress is reduced because the train speeds are reduced.[293]

On Reply, BNSF added costs for derails and wheel stops. In support of its addition of derails, BNSF discusses FRA "Blue Flag" protection for personnel working on equipment and also refers to an FRA safety regulation. OTRR will comply with the FRA "Blue Flag" rules covering protection of personnel working on equipment placed on set-out and yard tracks. However, the derails proposed by BNSF are not necessary as each set-out track will be constructed with a descending

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[293] This can be illustrated as the difference between cars going through an intersection at speed compared to cars slowing down to make a turn. The track structure is subjected to higher stress at higher speeds on the main line where the trains are moving past the turnout at speed.

grade leading away from the connecting switch. This obviates the need for derails. Furthermore, contrary to BNSF's assertion, FRA safety regulation 49 CFR § 213.205 does not specify that derails are required. However, Otter Tail does agree with BNSF that wheel stops should be placed at the end of all stub-end tracks and has included them in rebuttal.

On Rebuttal, Otter Tail has included $70.26 million in investment for these items.

iii. Materials Transportation

On Opening, Otter Tail included $109.30 million for material transportation. Otter Tail developed its materials transportation cost by identifying the quantities of materials, the source of the materials and the route traveled from the source to the OTRR and then applying the resulting ton-miles to the applicable unit cost for transportation.[294]

On Reply, BNSF included $120.09 million for material transportation. BNSF accepted all but two of Otter Tail's material sources.[295] BNSF also accepted Otter Tail's conversion factors and unit costs for material transportation but made changes to the quantities and the miles for some of the movements.

As noted previously, BNSF has overstated the material quantities necessary for the construction of the OTRR. This obviously causes BNSF's materials transportation costs to be overstated.

On Rebuttal, Otter Tail: (1) accepts BNSF's use of Kansas City, KS as the source for all OTRR

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294 OTRR's material transportation costs were based on one unit cost for ballast and another unit cost for all other material. See Otter Tail Opening at III-F-38 and Opening Errata electronic workpaper "OTRR Transportation.xls."

295 BNSF rejected Salt Lake City as a source of turnouts and the Ortonville Quarry as a source of ballast. BNSF rejected Salt Lake City because BNSF determined that turnouts are no longer made at this location. BNSF switched all quantities for turnouts originally shipped from Salt Lake City to Kansas City. (See BNSF Reply at III.F-163) BNSF rejected the Ortonville Quarry as a source of ballast until the OTRR rail line is built to serve the source. (See BNSF Reply at III.F-164)

turnouts; (2) accepts BNSF's addition of Sanborn, ND as a staging area;[296] and (3) corrects an improper cell reference in its transportation spreadsheet related to the mileage for railroad ties shipped from Superior, WI.[297] All of BNSF's other criticisms are addressed below.

First, BNSF's claim that materials were routed over the unbuilt OTRR to the staging areas is incorrect. In some instances, materials for the OTRR were shipped over BNSF trackage to the various staging areas for the OTRR. The existence of the hypothetical OTRR does not alter the existence of BNSF lines for service to non-OTRR traffic including the shipment of materials for the OTRR.[298]

BNSF's Reply goes on at length to argue ineffectively that it is inequitable. The crux of BNSF's argument is that, by shipping this material over the BNSF, Otter Tail is "avoiding the cost of transporting materials to the railroad during construction."[299] BNSF is wrong. Otter Tail has properly included the costs for routing transportation materials over BNSF trackage.[300] Therefore, Otter Tail has adequately compensated BNSF (as well as other railroads that ship OTRR materials)

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296 OTRR's addition of a staging area at Sanborn, ND has little impact on costs and eliminates a difference with BNSF.

297 On Opening, Otter Tail's transportation spreadsheet referenced incorrect miles for ties shipped from Superior, WI to OTRR staging areas at Fargo and Benson. This has been corrected on Rebuttal. See Otter Tail Rebuttal electronic workpaper "OTRR Transportation Rebuttal.xls", Sheet "Transportation", cells L17, L18, N17, N18.

298 BNSF's arguments to the contrary are inconsistent with positions taken by the BNSF in other areas. For example, when criticizing the OTRR operating plan, BNSF argues that the OTRR must factor in the impact on OTRR cycle times of BNSF traffic moving to and from the coal mines located on the Orin Line. (As discussed in Section III-C, supra, this contention is invalid as the OTRR is a separate rail line.) When it is advantageous to the BNSF, it demands that the STB consider the impact of BNSF's actual operations on the hypothetical OTRR, but when it is not advantageous, BNSF demands that the STB ignore the impact.

299 See BNSF Reply at III.F-165.

300 See Otter Tail Opening electronic file "OTRR Transportation Rebuttal.xls." Otter Tail multiplied the total ton-miles for materials shipped over BNSF tracks by the proper unit costs. The level of these unit costs are not at issue as BNSF accepted Otter Tail's unit costs on Reply.

for transporting materials over its tracks to the staging areas of the OTRR. Otter Tail's rebuttal mileages continue to reflect the utilization of existing BNSF rail lines where necessary.

Second, BNSF's criticism that OTRR cannot use ballast from the Ortonville Quarry until the OTRR rail line is built is also incorrect. Access to the Ortonville Quarry is obtained via existing BNSF trackage. Otter Tail properly compensates the BNSF for the use of this trackage at the unit cost level accepted by BNSF on Reply.

Finally, Otter Tail used PC*Rail as the source for its railroad miles in its calculation of transportation costs. BNSF does not even mention Otter Tail's use of PC*Rail and fails to provide a source for its mileages. PC*Rail is a commonly accepted source for railroad miles.[301] Therefore, Otter Tail continues to rely on mileages from PC*Rail in rebuttal.[302]

On Rebuttal, Otter Tail has continued to rely on its opening evidence methodology to calculate materials transportation costs. Rebuttal costs for materials transportation for the OTRR equal $112.18 million.

iv. Track Labor and Equipment

On Opening, Otter Tail included $212.61 million for track labor and equipment for the OTRR. On Reply, BNSF included $274.63 million for this investment item. BNSF accepted Otter Tail's unit cost for track construction labor but added costs for work trains to handle the distribution of material from the staging areas to the actual construction sites. Otter Tail agrees with BNSF's inclusion of this cost and has included it on rebuttal resulting in $276.70 million for track labor and

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301 PC*Rail is a railroad mileage program produced by ALK Associates, Inc. ("ALK"). ALK also processes the STB's Waybill Tape data and is responsible for developing the miles for each movement.

302 See Otter Tail Rebuttal Workpaper Vol. 2, pp. 6251 to 6262 for the miles from the material source locations to Sanborn, ND and from Kansas City, KS to the OTRR's staging locations that received turnouts from Salt Lake City, UT on Opening.

equipment for the OTRR. As there is no disagreement on the unit cost, the difference is due to the OTRR's slightly higher number of track miles.

4. Tunnels

As noted on page III-F-38 in Otter Tail's Opening Narrative, there are no tunnels on the OTRR. BNSF concurs in that assessment.

5. Bridges

On Opening, Otter Tail included $155.82 million for bridges on the OTRR (including $4.61 million in investment for walkways). Otter Tail developed the OTRR bridge requirements using bridge lists provided by BNSF in discovery.[303] Bridge costs were developed by separating the bridges into three different classes and calculating an estimated cost per foot for each of the three bridge types using costs obtained from the Means Handbook and suppliers.[304]

On Reply, BNSF included $415.86 million for bridges (including $5.10 million for walkways). The differences between Otter Tail's and BNSF's calculations are discussed below.

a. Inventory

On Opening, Otter Tail included 60,740 lineal feet of bridges for the OTRR[305] based on a review of the BNSF bridge inventory provided in discovery and publicly available track charts for the OTRR lines in Minnesota.

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303 The number of bridges was also adjusted for the number of OTRR tracks at each bridge location. See Otter Tail Opening Errata electronic workpaper "OTRR Bridges V2.xls."

304 See Otter Tail Opening Workpaper Vol. 6, pp. 4610 to 4629 and Opening Errata electronic workpaper "OTP Bridge unit costs.xls."

305 26,514 feet of single track bridges, 16,825 feet of double track bridges (33,650 bridge feet) and 192 feet of triple track bridges (576 bridge feet). See Otter Tail Opening Errata electronic workpaper "OTRR Bridges V2.xls."

On Reply, BNSF included 69,455 lineal feet of bridges.[306] BNSF states that (1) Otter Tail omitted bridges from the OTRR's inventory; (2) Otter Tail failed to correct "obvious errors in the bridge inventory"; (3) there were inconsistencies between the number of tracks shown on Otter Tail's stick diagrams and the number of tracks on bridges at some locations; and (4) BNSF reclassified three bridges as culverts.[307] Each of these issues are discussed below.

i. Omitted Bridges

BNSF has two issues with Otter Tail's bridge inventory regarding omitted bridges. The first issue pertains to bridges over highways. As discussed by Otter Tail on Opening, the bridges over roads on the OTRR's main line between Donkey Creek and Big Stone and on the Snowden Branch were built as an accommodation to the highway traffic that developed after these rail lines were originally constructed and were not paid for by the incumbent. BNSF has offered no proof of having paid for these bridges; hence, the investment for these bridges has been excluded as a barrier to entry.[308] This position has been accepted previously by the STB.[309]

On Reply, BNSF includes the investment for these bridges based on BNSF's identification of several bridges over highways from the ICC Engineering Reports.[310] A review of BNSF's listing of bridges over highways reveals that all of the bridges have a construction date of 1910 through 1913.[311] Otter Tail reviewed the dates for other structures on the ICC Engineering Reports, such as

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306 BNSF did not separately identify the feet of single track bridges, double track bridges or triple track bridges. See BNSF Reply Errata electronic workpaper "III F 5 Bridge_Errata.xls."

307 See BNSF Reply at III.F-174 to III.F-178.

308 See Otter Tail Opening at III-F-39, note 106.

309 See TMPA at 140; Duke-NS at 109; CP&L at 95; Duke-CSXT at 95.

310 See BNSF Reply at III.F-175.

311 See BNSF Reply Workpapers BNSF.RP.WP.III.F-0645 to 0646. This listing covers just two valuation sections and not the entire route of the OTRR

bridges over water and buildings, and determined that most were built in the 1880's,[312] thirty years before the bridges over highways were constructed. This clearly indicates that the bridges over the highways were not constructed when the lines were originally built. The short 1910-1913 time period could also be an indication that funds were made available to the railroad from other sources (e.g., local, state or federal governments) to construct these bridges over highways to accommodate increased vehicular traffic.

Furthermore, the existence of these structures on the ICC Engineering Reports does not mean that the railroad paid for them. As discussed more fully in Section III-F-8c, infra, the ICC Engineering Reports do not accurately indicate the level of financial responsibility of the railroad.

On Rebuttal, Otter Tail has continued to exclude the bridges over highways on the OTRR main lines between Donkey Creek and Big Stone as well as the Snowden Branch.

BNSF's second criticism of Otter Tail's bridge inventory is that seven bridges that cross natural features were left out. BNSF identified five bridges in MN and two bridges in MT.[313] Otter Tail has reviewed BNSF's workpapers and determined that Otter Tail inadvertently left out the five bridges in MN and one of the bridges in MT. These bridges have been included on Rebuttal. However, Otter Tail does not agree that the bridge in Huntley, MT should be included. First, BNSF identified this bridge as being located at Milepost (MP) 0.75 on the line segment between Gillette, WY and Huntley, MT (BNSF Line Segment 4).[314] First, there is no MP 0.75 near Huntley. Second, the

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312 See Otter Tail Rebuttal Workpaper Vol. 2, pp. 6372 to 6384.
313 See BNSF Reply at III.F-175.
314 See BNSF Reply electronic workpaper "III F 5 Bridge Workpapers.pdf."

OTRR turns north and east at Moran Junction, MT, which is east of Huntley, and never goes to Huntley. Otter Tail has not included the Huntley bridge on Rebuttal.

ii. Errors in BNSF's Bridge Inventory

BNSF contends that Otter Tail is in error because it "made no effort to correct obvious errors in the bridge inventory where the span lengths in the 'Description' column did not match the total bridge length in the 'Length' column" and refers to "sixteen instances."[315] BNSF also claims that totaling the lengths shown in the "Description" column[316] will not match the length as "most superstructures have some amount of overhang that is not used in describing the overall length of the bridge."[317]

Otter Tail relied on the BNSF bridge inventory provided in discovery and is not responsible for correcting so-called "errors." If there is a consistent discrepancy between the overall length and the sum of the "Description" column span numbers and lengths (as BNSF claims), then the overall length would always exceed the aggregation of the length information in the "Descriptions" column. BNSF did not demonstrate this and, in fact, this is not true. Otter Tail compared the "Length" column (taken from BNSF's bridge inventory provided in discovery) to the "Total Length" column which is the sum of the span information under the "Description" column (also taken from BNSF's bridge inventory provided in discovery). This comparison revealed that, for the majority of bridges, the amounts are equal. However, for some bridges the result is negative (the total span lengths are less than the listed length of the bridge) and for some bridges the result is positive (the total span

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315 See BNSF Reply at III.F-176.

316 The "Description" column contains information on the number of spans, the type of spans and the length of each span. This information is used to classify the bridge into one of the three bridge types. Bridge types are discussed infra in the next section.

317 Id.

lengths are greater than the listed length of the bridge).[318] As the bridges were classified (by both Otter Tail and BNSF) based on the types of spans and span length, Otter Tail properly relied on the aggregation of the span lengths.

Otter Tail reviewed BNSF's OTRR bridge inventory[319] and did not find any identification of these "sixteen bridges." However, Otter Tail was able to identify numerous bridges where BNSF adjusted either the span information under the "Description" column or the total length of the bridge.[320] Otter Tail also discovered that BNSF adjusted the aggregation of the span length information by forcing it to equal the total length of the bridge for all bridges with a difference.[321] BNSF has provided no support for its claim that the total length is the absolute correct length and does not even adhere to that policy if the span length aggregation results in a higher figure (as evidenced by the bridges where it changed the total length figure).[322] BNSF's bridge length modifications are improper.[323]

Otter Tail continues to rely on its Opening methodology to develop bridge quantities for the OTRR.

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318 See Otter Tail Rebuttal electronic workpaper "OTRR Bridges Rebuttal.xls", worksheet "bridges", Column AE.

319 See BNSF Reply Errata electronic workpaper "III F 5 Bridge_Errata.xls", worksheet "bridges'.

320 See BNSF Reply Errata electronic workpaper "III F 5 Bridge_Errata .xls", worksheet "bridges', Column H "Description" and Column L "Length." BNSF's modifications are noted in blue. In each instance, BNSF lengthened the bridge.

321 See BNSF Reply Errata electronic workpaper "III F 5 Bridge_Errata .xls", worksheet "bridges', formulas in Columns X, AD, AJ, AP and AV.

322 See BNSF Reply Errata electronic workpaper "III F 5 Bridge_Errata .xls", worksheet "bridges', Column L "Length." BNSF's modifications are noted in blue.

323 One of the largest differences is for the bridge at Dore, ND. The length column for this bridge shows 1,214 feet yet the sum of the spans totals 980 feet. (See Otter Tail Rebuttal electronic workpaper "OTRR Bridges Rebuttal.xls", worksheet "bridges", Line 401, Columns J and AB.) The BNSF track chart shows spans totaling 920 feet. (See Otter Tail Rebuttal electronic workpaper "Dore ND Bridge Length.pdf".) The track chart supports the bridge length used by Otter Tail.

iii. Otter Tail Track Counts

On Reply, BNSF identified seven instances where the number of tracks shown on Otter Tail's schematics for the OTRR (Exhibit III-B-1) did not match the number of track on bridges at those particular locations.[324] Otter Tail has corrected these instances on Rebuttal.[325]

iv. BNSF's Reclassification of Bridges as Culverts

On Reply, BNSF reclassified three short "railtop" bridges near Glendive, MT as culverts. Otter Tail has accepted BNSF's modifications.[326]

b. Classification

On Opening, Otter Tail's bridge expert, Dr. Vinaya Sharma,[327] classified the existing BNSF bridges on the OTRR line segments into three groups:[328]

Class 1: Wood trestles, concrete trestles, box beam and beam spans 40' or less

Class 2: Deck plate girder, concrete slab and beam spans greater than 40'

Class 3: Thru plate girder and truss

On Reply, BNSF accepted Otter Tail's classification methodology in general but proffered four criticisms of Otter Tail's methodology: (1) Otter Tail failed to properly account for multiple tracks bridges; (2) Otter Tail's mixing of class spans in bridges results in discrepancies; (3) Otter Tail's

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324 See BNSF Reply at III.F-177.

325 In the process of researching this issue, Otter Tail discovered that bridge 0.41 on BNSF Line Segment 40 (located in Glendive, MT) is a bridge over a road and should be excluded from the OTRR's bridge inventory. Otter Tail has corrected this on Rebuttal.

326 As discussed in Section III-F-2(d) Culverts, infra, BNSF also removed three culverts from Otter Tail's bridge inventory and Otter Tail accepted that modification as well.

327 Dr. Sharma, President of Sharma & Associates, Inc., has nearly 20 years of engineering experience with railroad bridges, including 13 years in the Research and Test Department of the Association of American Railroads. His qualifications were included in Section IV of Otter Tail's Opening Narrative.

328 See Otter Tail Opening at III-F-39 to III-F-40.

methodology produces misleading results which affect costs; and (4) Otter Tail failed to properly account for unique structures.[329] As discussed below, none of these has any merit.

i. Multiple Track Bridges

BNSF claims that Otter Tail understates pier counts and pier heights by not reflecting the number of tracks on each particular bridge and that Otter Tail's averages do not reflect three so-called "significant structures."[330] BNSF's argument is erroneous and void of merit.

First, Otter Tail's class averages are based on all bridges for each particular class including BNSF's so-called "significant structures."[331] Second, BNSF's Table III.F.5-1[332] (showing a difference in pier counts and average pier height for each of the three classes) is nonsensical and a complete misrepresentation of Otter Tail's inventory and costing procedures. BNSF's table allegedly shows, by bridge class, a count of piers and the average height using the "Otter Tail Single Track Method" versus the "Multiple-Tracks Method." With this table, BNSF attempts to demonstrate that Otter Tail's method is incorrect and that Otter Tail has understated the number of piers and therefore understated the costs. This is simply not true.

BNSF apparently fails to grasp Otter Tail's methodology. Otter Tail developed averages by class, including all bridges (even BNSF's so-called "special structures"), assuming the bridges are single track. Otter Tail then utilized these averages to develop the average cost per foot, by class, for single track bridges, based on costs for two abutments, the average span length, the average

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329 See BNSF Reply at III.F-178 to III.F-186.
330 See BNSF Reply at III.F-178 to III.F-179.
331 See Otter Tail Rebuttal electronic workpaper "OTRR Bridges Rebuttal.xls", sheet "bridges".
332 See BNSF Reply at III.F-179.

bridge length and the appropriate number of piers based on the bridge length and number of spans.[333] This average cost per foot was then applied to the total feet of the single track bridges on the OTRR. For double track bridges, the average cost per foot was doubled, in effect, including the cost to build two separate bridges (including all components - abutments, spans and piers) and applied to the total feet of double-track bridges.[334] In this manner, all the required piers, as well as all other components, were included and the costs of all the required piers, for single and multiple-track bridges were included as well. Contrary to BNSF's claim, Otter Tail has not understated the number of piers nor the costs associated with the construction of those piers.

In its Table III.F.5-1, BNSF also infers that Otter Tail's methodology has understated the height of the OTRR's bridges. This is untrue as well. Otter Tail's methodology develops the average height for each bridge class based on all the bridges included in each class. The fact that some of the bridges may be multiple-track bridges does not impact the height of the bridge. In fact, as noted previously, many double-track bridges are contained on one structure meaning that the height is for one structure.

Even BNSF does not believe that the numbers shown in Table III.F.5-1 are accurate. For example, under the "Multiple-Tracks Method", i.e., BNSF's method, BNSF shows an average pier height for Class 3 structures of 54 feet. However, in its reply design for a Class 3 pier, BNSF used

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333 For Class 1 bridges, the average bridge length was 74 feet with an average span length of 18 feet. This equates to four spans, requiring three piers. For Class 2 bridges, the average length was 202 feet with an average span length of 63 feet. This equates to three spans requiring two piers. For Class 3 bridges, the average length was 253 feet with an average span length of 112 feet. This equates to three spans requiring two piers. See Otter Tail Opening electronic workpaper "OTP Bridge Unit Costs.xls."

334 This does not mean that there are two separate structures. Many multiple-track bridges are contained on a single structure. Otter Tail's methodology of multiplying the single-track cost by the number of tracks is a conservative method of estimating the costs as double-track bridges do not usually cost twice as much to construct as a single-track bridge. Furthermore, the fact that many double-track bridges are contained on one structure renders BNSF's "weighted average" argument erroneous. See Otter Tail Rebuttal Workpaper Vol. 2, p. 6316.

an average height of 27 feet.[335] The value is half of that shown in BNSF's table and only one foot more than the average pier height of 26 feet used by Otter Tail. This demonstrates that BNSF's calculations in Table III.F.5-1 are inappropriate, nonsensical and that its arguments regarding bridge classification issues are baseless.[336]

ii. Mixing of Class Spans

BNSF claims that Otter Tail has somehow understated bridge costs by mixing different class spans within a single bridge for thirty bridges on the OTRR. BNSF implies that Otter Tail has omitted 271 feet (3.66 bridges) from its calculation of costs for Class 1 bridges.[337] Once again, BNSF has attempted to confuse the issue with meaningless calculations.

As explained above, Otter Tail developed a cost per foot for each bridge class based on the average characteristics for each class. That cost per foot is applied to all of the bridge feet of the OTRR for that particular bridge class so there is no omission of any bridge feet, much less the 271 feet implied by BNSF. Included in that cost per foot calculation for each bridge class is the costs for two abutments and the requisite number of piers and spans. This means that, if a particular bridge is comprised of two different classes, the costs are overstated rather than understated. For example, assume a bridge is comprised of a mixture of spans, some of which are Class 1 and some of which are Class 3. The cost per foot applied to the Class 1 length includes costs for two abutments as does the cost per foot for the Class 3 length. Contrary to BNSF's implication, Otter Tail has actually overstated, not understated, the costs for the thirty bridges with a mixture of class spans.[338]

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335 See BNSF Reply electronic workpaper "III F Bridge Workpapers.pdf", page 191.
336 See Otter Tail Rebuttal Workpaper Vol. 2, p. 6316.
337 See BNSF Reply at III.F-180 to III.F-181.
338 See Otter Tail Rebuttal Workpaper Vol. 2, pp. 6314 to 6315 for an example demonstrating this.

iii. Otter Tail's Bridge Classification Methodology is Not Deficient

On Reply, BNSF claims that Otter Tail's classification methodology is deficient because (1) it does not consider multiple track bridges in developing its costs; and (2) it does not properly account for all the required piers. BNSF then goes on to advance its methodology of classification and cost development.[339]

As discussed above, BNSF's arguments regarding the impact of multiple-track structures on the average characteristics are baseless as many multiple track bridges are contained on a single structure. Furthermore, Otter Tail's methodology accounts for multiple track bridges by multiplying the number of OTRR tracks times the cost for a single track bridge (conservatively including sufficient costs to build one separate bridge for each track). In addition, as discussed above, Otter Tail's methodology accounts for all the necessary piers for the OTRR bridges.

BNSF has failed to show that Otter Tail's methodology is inappropriate or inaccurate; yet it uses those claims as a way to justify presenting its own way of developing bridge costs. However, BNSF's methodology is flawed in that it relies on BNSF's groundless theory of the impact of multiple track bridges, which enables BNSF to improperly increase the average bridge characteristics that, in turn, increase its bridge cost calculations.

iv. Otter Tail Has Properly Accounted for All Bridge Structures

On Reply, BNSF criticizes Otter Tail for not having a category of "special structures." According to BNSF, this category includes the Valley City Bridge in Valley City, ND, the Bismarck

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339 See BNSF Reply at III.F-181 to III.F-183.

Bridge in Bismarck, ND and the lift bridge near Snowden, MT. As discussed below, a category of special structures is not necessary.

BNSF has treated the Valley City Bridge as a special structure due to the height of the bridge. This is unnecessary because the bridge's height is reflected in the average height for Class 2 bridges (obviously increasing the average height) used in Otter Tail's cost calculations. The increased forces and moments resulting from increases in pier height are linear. For example, moment at the base of the pier varies linearly with the height of the pier for an applied transverse/ longitudinal force. Therefore, Otter Tail's averaging process adequately represents all tall structures on the OTRR.

BNSF has treated the Bismarck Bridge as a special structure "because of its great length and the need for efficiency in the design of this bridge."[340] As with the height issue discussed above, this is unnecessary because the length of the bridge (total length and span length) is reflected in the average length calculations for Class 3 bridges used in Otter Tail's cost calculations. Furthermore, BNSF's cost per foot for the Bismarck bridge ($) is over twice the cost per foot for BNSF's other Class 3 bridges ($), negating any claims of achieved efficiency.

Finally, BNSF criticizes Otter Tail for its failure to reproduce an existing vertical lift bridge over the Missouri River at Snowden, MT. BNSF claims that Otter Tail must construct a lift bridge at Snowden because BNSF currently has such a bridge and "...federal law requires the bridge to be opened upon demand."[341] BNSF includes over $51 million[342] for the construction of a lift bridge at

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340 See BNSF Reply at III.F-184.

341 See BNSF Reply at III.F-185.

342 See BNSF Reply Errata electronic workpaper "III F 5 Bridge Unit Costs_Errata.xls", Sheet "Cost by Class", Column (I), Line 212. This $51.48 million for the lift span alone represents nearly 13% of BNSF's total bridge costs of $410.75 million for the OTRR.

this location.[343] BNSF's position is unfounded, unsupported, and inconsistent with the economic principles of constrained market pricing.

The principles of constrained market pricing allow broad flexibility in constructing the stand-alone railroad.[344] The OTRR is a least-cost efficient competitor.[345] Nowhere in its Reply filing does BNSF provide support for its contention that the OTRR would be required to build a lift bridge at this location. BNSF's only support for its position are its claims that: (1) BNSF has to be prepared to open the bridge on request; and (2) BNSF's last effort to replace this bridge was rejected by the War Department in 1958.[346] BNSF never explains why a lift bridge exists at this location; BNSF merely states that one does exist. It is ludicrous to base the OTRR's need for a lift bridge on letters dated more than 40 years prior to the OTRR's construction.[347] Furthermore, BNSF did not provide any data or documentation identifying dates that the lift bridge was operated.[348]

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343 As discussed infra, it is not necessary for the OTRR to construct a lift bridge at Snowden. Nonetheless, Otter Tail notes that BNSF has significantly overstated its cost estimate for this bridge. Specifically, BNSF has double-counted costs for contingencies and mobilization association with this bridge. BNSF applies overall contingency and mobilization factors to total construction costs at the end of its calculation process. However, in developing its cost estimate for the Snowden lift bridge, BNSF also included costs for contingency and mobilization. See BNSF Reply electronic workpaper "III.F-5 Bridge Workpapers.pdf", p. 477.

344 The ICC ruled in Coal Rate Guidelines that "the parties will have broad flexibility to develop the least costly, most efficient plant" and that "the plant should be designed to minimize construction (or acquisition) and operating costs and/or maximize the carriage of profitable traffic." 1 I.C.C. 2d at 543.

345 The ICC also ruled in Coal Rate Guidelines that "[t]he purpose of SAC analysis is to determine the *least* cost at which an efficient competitor could provide the service, because by so doing we are simulating the competitive price for the market." 1 I.C.C. 2d at 542.

346 See BNSF Reply at III.F-185.

347 A reading of the 1945 letter from the Corps of Engineers does not indicate that such a structure was required, only that the lift bridge was in place and the Corps of Engineers requested that it remain in place. In fact, Great Northern Railway was given the option of removing the cables and counterweights as long as the bridge would be restored to operating condition should "public interest require it." The 1958 letter does not indicate that a lift bridge is necessary either. To the contrary, it speaks optimistically of the possible reduction of the clearance requirements for bridges over the Missouri River. Unfortunately, BNSF did not provide any additional information as to the outcome of this effort (or of any efforts in this regard for the last 40 years). In short, BNSF's alleged support for its position provides no support at all. See BNSF Reply Workpapers BNSF.RP.WP.III.F-0631 to 0633.

348 In fact, Otter Tail's research pertaining to BNSF's lift bridge at Snowden revealed that the lift mechanism for the bridge has not been operated since it was last raised in 1935 to allow for the passage of boats carrying

Prior to filing its Opening evidence, Otter Tail performed a search of public information to determine if there is any federal, state or local obligation governing the navigational clearance for bridges in Montana or specifically requiring the construction of a lift bridge over the Missouri River at Snowden, MT. This search did not reveal any such requirements and, therefore, Otter Tail constructed a fixed bridge at this location.[349] In response to BNSF's Reply, Otter Tail again searched for any such requirements. This additional research confirmed Otter Tail's opening conclusion that there is no statutory or operational requirement for the OTRR to construct a vertical lift span bridge over the Missouri River at this location.[350] In addition, nowhere in BNSF's Reply has BNSF shown that the bridge constructed by Otter Tail on Opening at Snowden, MT is insufficient or defective.[351]

In addition to the above arguments, Otter Tail also notes that there would be no practical navigational reason for placing a lift bridge at Snowden, Montana. Nearby highway bridges offer lower clearance than the 55-foot OTRR bridge included by Otter Tail.

The Snowden Lift Bridge actually crosses the Missouri River at a tiny town called Nohly, MT, just a few miles south of Snowden. About four miles downriver, North Dakota state route 58 crosses

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supplies for the construction of the Fort Peck Dam west of Snowden. (See Otter Tail Rebuttal Workpaper Vol. 2, pp. 6264 to 6275).

349 During the five months BNSF had to prepare its Reply evidence, it did not submit any workpaper request to Otter Tail pertaining to why Otter Tail did not construct a lift bridge at this location.

350 Furthermore, in response to BNSF's citation of U. S. Coast Guard ("USCG") regulations (see BNSF Reply at III.F-185, note 207), Otter Tail contacted a representative of the USCG located in Seattle, WA (the USCG headquarters for the district that includes MT). During this conversation, Otter Tail was informed that there is no statutory navigational clearance requirement for a railroad bridge over the Missouri River near Snowden, Montana. According to the USCG, the Missouri River in Montana is considered a navigable waterway as defined by the USCG but is specifically exempted under Section 107 of the Coast Guard Authorization Act of 1982 (Public Law 97-322) from all bridge permitting requirements. (See Otter Tail Rebuttal Workpaper Vol. 2, pp. 6265 to 6266).

351 The USCG recommends only a 30-foot clearance for bridges over the Missouri River in Montana. (See Otter Tail Rebuttal Workpaper Vol. 3, pp. 6067 to 6069.) The OTRR will build this bridge at its existing height of 55 feet, i.e., higher than the USCG recommendation.

the Missouri River near Buford, ND. According to the North Dakota Department of Transportation, the route 58 bridge over the Missouri River is a nine-span bridge. These spans offer between 22 and 26 feet of clearance over the river at a normal water elevation of 1860.2 feet.[352] Thus boats, that need more than 26 feet of clearance cannot travel up the Missouri River past the route 58 bridge in Buford, ND.

While the route 58 bridge is a few miles down river from Snowden, there is a Montana highway bridge several miles upriver from Snowden as well. About 15 miles upriver from the Snowden lift bridge is the Montana state route 16 bridge at Culbertson, MT. According to the Montana Department of Transportation, this bridge offers clearance between 16 and 50 feet above the normal river elevation.[353] Hence, boats needing a clearance of over 50 feet could not travel down the Missouri River past this route 16 bridge.

The existence of these highway bridges on either side of the Snowden site shows that a lift bridge is not required in this location. The OTRR's bridge at Snowden has a clearance of 55 feet. This is higher than the clearance for bridges on either side. There would be no reason to place a bridge with a higher clearance at Snowden - boats that need a higher clearance will never reach Snowden.

Based on the above, Otter Tail continues to maintain that a lift bridge is not required at Snowden, MT.

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352 See Otter Tail Rebuttal Workpaper Vol. 2, pp. 6272 to 6274.
353 See Otter Tail Rebuttal Workpaper Vol. 2, p. 6275.

c. Bridge Design

On Opening, Otter Tail's bridge expert, Dr. Sharma, designed the bridges for the OTRR and developed the unit cost per foot for each of the three types of bridges.[354] On Reply, BNSF took issue with much of Dr. Sharma's bridge design.[355] BNSF's criticisms are discussed below.

i. Superstructure

On Reply, BNSF accepted Otter Tail's superstructure design for Class 1 and Class 2 bridges.[356] However, BNSF did not accept Otter Tail's superstructure design for the Class 3 bridges. BNSF claims that Otter Tail understated the weight of the miscellaneous steel for these bridges by excluding "intermediate and bearing stiffeners, girder web and flange splice plates, and steel bridge rocker bearings."[357]

In response to BNSF's criticism, Otter Tail re-computed the weight of the miscellaneous steel for Class 3 bridges. Specifically, Otter Tail calculated the steel weight for the following items: bearing stiffeners, intermediate stiffeners, knee braces, stringer connection, floorbeam connection, stringer bracing and connection plates, floorbeam bracing and connection plates, rocker bearings and anchor bolts. The additional steel associated with all these items equals 325 pounds per linear foot ("PLF"). On Opening, Otter Tail included 250 PLF for miscellaneous steel.[358] Otter Tail has increased this to 325 PLF on Rebuttal.[359]

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354 See Otter Tail Opening Workpaper Vol. 6. pp. 4596-4629 and Opening Errata electronic workpaper "OTP Bridge unit costs.xls."
355 See BNSF Reply at III.F-186 to III.F-192.
356 See BNSF Reply at III.F-186.
357 See BNSF Reply at III.F-187.
358 See "Otter Tail Power Company's Response to Defendant's First Request for Work Papers", response to Request No. 32 under Section III.F - Road Property Investment.
359 See Otter Tail Rebuttal Workpaper Vol. 2, pp. 6292 to 6294.

ii. Pier Design

On Reply, BNSF claims that Otter Tail's Class 1, 2 and 3 piers are structurally inadequate. BNSF also claims that Otter Tail ignored costs for pier cap adjustments and superstructure depth necessitated by the mixing of class spans. Neither of these criticism have any merit.

BNSF's claim of structurally inadequate piers is based on several errors in its calculations. First, BNSF used incorrect wind loads in its calculations, resulting in design wind loads up to 27% higher than AREMA specifications.[360] Second, BNSF used significantly higher dead loads and live loads than required in evaluating Class 3 piers, overstating them by 24%. Third, BNSF's claim that the Class 3 substructures do not satisfy stability requirements is based on a wrong value of effective length factor. Fourth, BNSF used excessive longitudinal force values that none of BNSF's bridges have been built to in its evaluation of Otter Tail's bridge design. In other words, BNSF is requiring Otter Tail to meet higher, and unnecessary, standards that BNSF bridges do not meet. When BNSF's errors are corrected, Otter Tail's Class 1, 2 and 3 pier designs are more than sufficient for the OTRR.[361]

BNSF's claim that Otter Tail understated costs by ignoring costs for pier cap adjustment and superstructure depth for bridges with mixed class spans is also without merit. An example comparing total bridge costs generated by Otter Tail's method and BNSF's method demonstrates that Otter Tail's method accounts for all the costs associated with bridge construction. Bridge 3.9 on segment 39 over the Heart River is comprised of six Class 1 spans (totaling 100 feet) and two Class

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360 These erroneous wind loads are used in BNSF's evaluation of piers and abutments for all three bridge classes.

361 A more detailed discussion of these issues, along with the corrected calculations, is contained in Otter Tail's rebuttal workpapers. See Otter Tail Rebuttal Workpaper Vol. 2, pp. 6297 to 6306.

3 spans (totaling 202 feet). Total costs for this bridge using BNSF's methodology and costs equals $992,365 while the same bridge using Otter Tail's methodology and rebuttal costs equals $1,049,396. Clearly, Otter Tail's methodology and costs reflect all the necessary costs for bridge construction.[362] On Rebuttal, Otter Tail has continued to rely on its Opening evidence pier design.

iii. Abutment Design

On Reply, BNSF rejected Otter Tail's abutment design, claiming that the design was inadequate and several components were missing, such as wing walls and backwalls. BNSF also claims that Otter Tail's abutment designs do not satisfy eccentricity and overturning criteria.[363] BNSF's criticisms are unfounded and invalid.

AREMA states that wing walls are to be used "as necessary" but BNSF has not demonstrated that they are necessary. Furthermore, in Chapter 8, Section 5.1.1.c., AREMA permits the use of spill through abutments making backwalls unnecessary. In addition, as discussed above under pier design, BNSF uses incorrect wind load data to evaluate Otter Tail's abutments. BNSF has also considered the effect of longitudinal forces incorrectly. Making the corrections to BNSF's calculations results in Otter Tail's abutments satisfying the eccentricity criteria.[364]

As Otter Tail's abutments are adequate and safe, Otter Tail has continued to rely on its Opening abutment design.

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362 See Otter Tail Rebuttal Workpaper Vol. 2, p. 6314.

363 See BNSF Reply at III.F-190 to III.F-191 and BNSF Reply electronic workpaper "III F Bridge Workpapers.pdf."

364 A more detailed discussion of these issues is contained in Otter Tail's Rebuttal workpapers. See Otter Tail Rebuttal Workpaper Vol. 2, pp. 6307 to 6308.

iv. Pile Design

On Reply, BNSF criticized Otter Tail's pile design and pile counts[365] claiming that Otter Tail's "...pattern for piles is not sufficient to support the superstructures, wind forces and loads created by trains."[366]

Based on a review of BNSF's criticisms, Otter Tail reevaluated the pile capacity of its Opening design and developed a revised pile capacity. Application of this revised pile capacity resulted in no change to the Class 1 or Class 2 pile counts but did revise the Class 3 pile counts upward. Otter Tail has used the revised Class 3 pile counts in its Rebuttal evidence.[367]

d. Structural Components and Construction Practices

i. Structural Components

On Reply, BNSF criticizes Otter Tail for omitting certain structural components, specifically, deck expansion joints, deck waterproofing, deck drains and pier protection. While BNSF's criticisms have some merit, BNSF's costs for these items are grossly overstated.

On Rebuttal, Otter Tail agrees that deck expansion joints should be included.[368] BNSF includes a more expensive design consisting of a rubber compression sealer with steel cover plates. The rubber compression sealer is unnecessary as a steel apron plate across the joint accomplishes the

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365 Four piles for each Class 1 pier and abutment, six piles for each Class 2 pier and abutment and eight piles for each Class 3 pier and abutment. See Otter Tail Opening Errata electronic workpaper "OTP Bridge unit costs.xls", worksheet "Cost by Type."

366 See BNSF Reply at III.F-191.

367 A more detailed discussion of this issue is contained in Otter Tail's Rebuttal workpapers. See Otter Tail Rebuttal Workpaper Vol. 2, p. 6309.

368 Deck expansion joint is really a misnomer. In actuality, the "joint" is where two spans come together and there is a small space between them.. This space allows for the expansion and contraction of the spans due to thermal changes and under a live load. The piece of material referred to as the deck expansion joint is simply material which covers this space to prevent items from falling into the space and impeding proper span movement.

same purpose - keeping foreign objects from falling into the joint. On Rebuttal, Otter Tail has included steel apron plates across the bridge joints.[369]

Otter Tail also agrees that deck waterproofing should be included and has done so on Rebuttal.[370]

Otter Tail also agrees that deck drains are necessary. Usual practice is to use an inexpensive PVC pipe with a small mesh grating on the deck surface of the drain. The cost for these drains is minimal and is included in the deck cost. BNSF has overstated the drain cost by including the type of expensive drain usually used in the floor of buildings.[371]

Finally, BNSF has included grossly overstated costs for pier protection. BNSF included pier protection for every bridge pier on bridges that cross rivers in order to protect them against ice floes. BNSF has provided no evidence that significant ice floes will occur on these rivers nor has BNSF provided any evidence that any of its existing bridges have the type of pier protection that BNSF specifies for the OTRR. A more appropriate determination of the bridges that require pier protection is whether or not navigation will be occurring on the river. For example, Bridge 50.99 on the Powder River consists of four 15-foot beam spans with a height of 9 feet. This low, narrow location is obviously not navigable yet BNSF has provided pier protection for all the piers of this bridge. Based on a review of the rivers crossed by the OTRR, there are four locations where pier protection is required.[372]

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369 See Otter Tail Rebuttal Workpaper Vol. 2, p. 6288 and Rebuttal electronic workpaper "OTP Bridge unit costs Rebuttal.xls."

370 See Otter Tail Rebuttal Workpaper Vol. 2, pp. 6286 to 6287 and Rebuttal electronic workpaper "OTP Bridge unit costs Rebuttal.xls."

371 See Otter Tail Rebuttal Workpaper Vol. 2, p. 6326.

372 Line Segment 38, Bridge 196.63 over the Missouri River; Line Segment 26, Bridge 6.9 over the Red River; Line Segment 306, Bridge 0.07 over the Yellowstone River; and Line Segment 306, Bridge 76.45 over the Missouri

Even for bridges crossing major rivers, not all of the piers are in the navigable portions of the waterway. Piers that are on land or not near the navigable water depths do not require pier protection. Otter Tail has assumed that one pier on either end of the bridge is either on land or not in the navigable portion of the waterway. This results in 46 piers for the four bridges requiring pier protection.[373]

The pier protection method used by BNSF also overstates the amount of concrete required. BNSF casts concrete between the pier columns for the entire height of the column and places a nose piece on either side. A better method is to encase the entire column group for an average height of 10 feet above the top of the footing.[374] BNSF also overstates the cost of the concrete by using costs for concrete with maximum reinforcement levels. Pier protection consists of additional material primarily provided to protect the structural members from impact. There is no reason to provide such high levels of reinforcement. Equivalent levels of protection can be provided by using the same volume of concrete with lower levels of reinforcement. BNSF's overstated reinforcement results in a unit cost more than 2.5 times higher than necessary.[375]

On Rebuttal, Otter Tail has provided pier protection only where necessary and at the appropriate unit cost.[376]

ii. Construction Practices

On Reply, BNSF criticized Otter Tail for omitting the costs for cofferdams and winter concrete. Each of these items is discussed below.

River. See Otter Tail Rebuttal Workpaper Vol. 2, p. 6291.

373 See Otter Tail Rebuttal electronic workpaper "OTP Bridge unit costs Rebuttal.xls", sheet "Pier Protection."

374 See Otter Tail Rebuttal Workpaper Vol. 2, pp. 6291 and 6324 to 6325.

375 See Otter Tail Rebuttal Workpaper Vol. 2, p. 6324.

376 See Otter Tail Rebuttal electronic workpaper "OTP Bridge unit costs Rebuttal.xls", sheet "Pier Protection."

BNSF included cofferdams for every pier on every OTRR bridge that crosses water, including the smallest creeks. Most of these bridges are on shallow waterways[377] and there is no cause for using 15-foot deep cofferdams on every pier of these bridges.[378] While some of these bridges are classified as traversing a waterway, some of the waterways may have actual flows only part of the year due to the arid and semi-arid climate along the OTRR's route. Even bridges that are over waterways with constant flow will not have all the piers in the waterway, negating the need for cofferdams for every pier. BNSF's all-inclusive approach significantly overstates cofferdam requirements and costs.

On Rebuttal, Otter Tail has included cofferdam costs but has based the requirements for cofferdams on a much more reasonable approach. Specifically, Otter Tail has included cofferdams for only those bridges that traverse rivers and have an overall length in excess of 200 feet. This criteria reflects only those seventeen bridges where cofferdams will most likely be necessary, i.e., waterways that are likely to have significant water flows year-round. As discussed above, not all piers will be located in the waterway. Otter Tail has reflected this by including cofferdams for 50% of the piers on these bridges. On Rebuttal, Otter Tail has included costs for 128 cofferdams[379] in total.[380]

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377 Of the 1,099 cofferdams included by BNSF, 898 (over 80%) were for Class I bridges. (See BNSF Reply Errata electronic workpaper "III F 5 Bridge_Errata.xls", worksheet "Inventory Summary"). Class I bridges are the shortest bridges in both height and span length and are used to cross the least imposing and narrower waterways such as creeks.

378 The average height of a Class I bridge is only 13.9 feet according to BNSF. See BNSF Reply Errata electronic workpaper "III F 5 Bridge_Errata.xls", worksheet "Inventory Summary."

379 In the unlikely event that the OTRR determined during construction that additional cofferdams became necessary, the additional costs would be accounted for in the contingency monies set aside by the 10% additive to construction costs used by both Otter Tail and BNSF.

380 See Otter Tail Rebuttal electronic workpaper "OTP Bridge unit costs Rebuttal.xls", worksheet "Cofferdams."

BNSF also included costs for winter concrete. Winter concrete is unnecessary. The OTRR schedule allows for 14 months for bridge construction.[381] The longest bridge on the OTRR, the Valley City Bridge, can be constructed in 12 months, including a 4-month interval during the winter when no concrete would be poured. On Rebuttal, Otter Tail has not included any costs for unnecessary winter concrete.[382]

e. Unit Costs

i. Index

On Opening, Otter Tail developed its bridge construction costs using unit costs from the 2003 Means Handbook indexed back to 2002.[383] On Reply, BNSF criticized Otter Tail for this procedure and relied on 2002 Means Handbook unit costs.[384] On Rebuttal, in response to BNSF's criticism, Otter Tail has modified its unit cost calculations by relying on unit costs from the 2002 Means Handbook.[385]

ii. Additional Items

On Reply, BNSF identifies nine items that it claims Otter Tail omitted - winter concrete, deck waterproofing, expansion joints, structural excavation, pile points, deck drains, pier protection, prestressed concrete deck slab and cofferdams.[386] Winter concrete, deck waterproofing, expansion

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381 See Otter Tail Opening electronic workpaper "OTRR SCHEDULE.XLS."

382 In the unlikely event that the OTRR had to utilize winter concrete during construction, the additional costs for this would be accounted for in the contingency monies set aside by the 10% additive to construction costs used by both Otter Tail and BNSF.

383 See Otter Tail Opening electronic workpaper "OTP Bridge unit costs.xls."

384 See BNSF Reply at III.F-198.

385 See Otter Tail Rebuttal electronic workpaper "OTP Bridge unit costs Rebuttal.xls."

386 See BNSF Reply at III.F-198 to III.F-199.

joints, deck drains, pier protection and cofferdams have already been discussed, supra.[387] The remaining three items are discussed below.

BNSF claims that Otter Tail omitted costs for structural excavation associated with bridge construction. While most of the excavation for the OTRR is accounted for in the earthwork costs, there is a minor amount of excavation that is specifically related to bridge construction. Therefore, on Rebuttal, Otter Tail has included costs for structural excavation.[388]

BNSF also claims that Otter Tail improperly omitted the costs for pile points. BNSF includes pile points for every pile used in both abutments and piers. This is completely unnecessary and significantly overstates bridge costs. According to AREMA Manual, Chapter 8, Section 4.4.3.7., pile point reinforcement is recommended only in very special situations, such as driving piles through heavy gravel, boulders or formations known to contain obstructions.[389] As BNSF did not demonstrate that any of these special situations apply to the OTRR, Otter Tail contends that pile points are unnecessary and has not included them on Rebuttal.

Finally, BNSF claims that Otter Tail omitted the costs for a prestressed concrete deck slab for Class 1 bridges. As shown in Otter Tail's response to BNSF's workpaper requests, Otter Tail's Class 1 deck is of reinforced concrete construction.[390] By making an incorrect assumption, BNSF has overstated the cost of the Class 1 deck.[391]

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387 On Rebuttal, Otter Tail has included costs for deck waterproofing, expansion joints, pier protection and cofferdams. Otter Tail maintains that winter concrete is unnecessary and deck drains are included with the cost of the bridge deck.

388 See Otter Tail Rebuttal electronic workpaper "OTP Bridge unit costs Rebuttal.xls."

389 See Otter Tail Rebuttal electronic workpaper "AREMA pile points.pdf."

390 See "Otter Tail Power Company's Response to Defendant's Second Request for Work Papers", response to Request No. 5 under Section III.F - Road Property Investment, pages 4815 through 4818.

391 As noted throughout this section, BNSF has overstated bridge costs for the OTRR based on unnecessary specifications (e.g., excessive longitudinal forces, winter concrete, pile points and pier column reinforcement levels in excess of that permitted), erroneous formulas (e.g., wind loads, dead loads and live loads), incorrect

f. Pedestrian Bridge

On Reply, BNSF includes $0.68 million for a pedestrian overpass in Gillette, WY.[392] BNSF claims to own and maintain this pedestrian bridge but did not provide any documentation showing that BNSF initially paid for this structure. This type of structure is similar to a highway overpass in that it was not built when the rail line passing through Gillette was originally constructed and as such is classified as a barrier to entry. Absent any evidence demonstrating that BNSF incurred the cost to originally construct this structure,[393] Otter Tail has not included the costs for it in the OTRR's investment base on Rebuttal.

g. Walkways

On Opening, Otter Tail included walkways on bridges longer than 50 feet resulting in $4.61 million in investment for bridge walkways.[394] On Reply, BNSF included $5.10 million for bridge walkways. BNSF accepts Otter Tail's specification of walkways on bridges longer than 50 feet and unit cost per foot for walkways but includes a higher number of walkway feet.

BNSF does not indicate why its quantity is higher but includes a discussion about the need for walkways on both sides of double track bridges. Although not stated, BNSF's discussion infers that Otter Tail failed to do this. This in incorrect. Otter Tail included two walkways on double-track bridges in calculating the number of feet of bridge walkways.[395] The primary reason for the

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assumptions (e.g., prestressed concrete deck slabs) and over-application of requirements (e.g., pier protection and cofferdams). A more detailed discussion of Otter Tail's criticisms of BNSF's Reply design is contained in Otter Tail Rebuttal Workpaper Vol. 2, pp. 6321 to 6333.

392 See BNSF Reply at III.F-199 to III.F-200.

393 Although BNSF claims to own the pedestrian bridge, BNSF did not provide any support for this claim. Furthermore, it is possible for BNSF to own the bridge without having incurred the costs to construct it, i.e., the costs were funded by another entity who then deeded the structure to BNSF.

394 See Otter Tail Opening at III-F-39 and Otter Tail Opening Errata electronic workpapers "OTRR Bridges v2.xls" and OTRR Construction.xls."

395 See Otter Tail Opening Errata electronic workpaper "OTRR Bridges v2.xls", cell AD400.

difference between Otter Tail's and BNSF's bridge walkway quantities is BNSF's inclusion of walkways on bridges over highways.[396] As discussed previously, bridges over highways are a barrier to entry and should be excluded from the OTRR's investment base. The same holds true for the walkways for these bridges.

On Rebuttal, Otter Tail has continued to rely on its opening methodology to develop the number of bridge walkway feet resulting in $4.65 million for investment in bridge walkways.[397]

h. BNSF Supplemental Reply

In BNSF's Supplemental Reply Case, BNSF submitted a new stand-alone system that excluded a significant amount of non-coal overhead traffic for the OTRR. Specifically, BNSF eliminated the OTRR branch line from Glendive, MT to Snowden, MT and reduced the facilities on the OTRR rail line between Glendive, MT and Fargo, ND. As a result of this elimination of facilities, BNSF's bridge characteristics were altered. BNSF also re-designed its Class 2 and Class 3 special bridges to be single-track rather than double-track. As discussed infra, Otter Tail disagrees with BNSF's claim that there needs to be Class 2 and Class 3 special bridges and maintains that Otter Tail's methodology of incorporating the characteristics of all bridges within each class captures all the necessary information and results in the appropriate level of costs. Otter Tail has reviewed BNSF's Supplemental Reply design modifications and concluded that they suffer from the same deficiencies previously noted, i.e., BNSF has overstated the size and cost of substructures (piers and abutments) due to excessive longitudinal force and wind load design; BNSF has overstated the need for cofferdams and pier protection; BNSF has included costs for concrete reinforcement of piers that

396 There are also minor differences caused by differences in bridge length. Bridge length differences were addressed previously in this section.

397 This is a slight increase over Opening due to the additions made to the bridge inventory discussed infra.

results in reinforcement levels greater than permitted; and, BNSF has included unnecessary and overstated costs for pile tips, winter concrete, bridge joints and deck drains.

6. Signals and Communications

a. Centralized Traffic Control (CTC) System

On Opening, Otter Tail included $200.46 million for the OTRR's CTC system. Otter Tail developed its CTC costs using costs accepted by the STB in FMC.[398] Otter Tail also included $1.99 million for electric locks for the manual turnouts connected to the mainline and passing sidings. Investment in electric locks was based on the count of manual turnouts and a cost per lock provided by BNSF in discovery.

On Reply, BNSF included $200.95 million for the OTRR's CTC system and $3.11 million for electric locks.[399] BNSF accepted Otter Tail's methodology for developing the CTC costs but adjusted its calculations to reflect BNSF's overstated track miles (main and passing sidings) covered by the CTC system. The differences in main and passing siding miles were discussed in Section III-B, supra.

The difference in investment cost for electric locks is due to BNSF's overstated count of manual turnouts connected to the main line. The overstated count of manual turnouts is due to BNSF's overstated yard tracks and its improper and unnecessary reconfiguration of the OTRR's set-out tracks. Both of these issues have been discussed previously

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398 See Otter Tail Opening Workpaper Vol. 6, pp. 4690 to 4694 and Opening Errata electronic workpaper "OTRR CTC.xls."

399 See BNSF Reply Errata electronic workpaper "III F OTRR Construction_Errata.xls," worksheet "Total Cost".

On Rebuttal, Otter Tail has continued to rely on its opening evidence methodology and unit costs and included $200.62 million for the OTRR's CTC system and $2.19 million for electric locks.

b. Hot Bearing and Dragging Equipment Detectors

On Opening, Otter Tail included 44 hot bearing and dragging equipment detectors (collectively referred to as failed equipment detectors or FED's) at a total investment cost of Otter Tail's calculations were based on 37 single track and 7 double track FED's and unit costs provided by BNSF in discovery.

On Reply, BNSF accepted Otter Tail's 44 FED's (and their placement) and included investment BNSF's calculations were based on 38 single track and 6 double track FED's. BNSF changed one double track FED to a single track FED due to its improper elimination of some of the double track between Converse Yard and Donkey Creek, as discussed previously.

On Rebuttal, Otter Tail has included for FED investment based on its Opening FED count[400] and unit costs.

c. Communications

On Opening, Otter Tail included $11.85 million for the OTRR's microwave communications system.[401] Otter Tail's microwave system is based on a 6 GHz microwave backbone network spanning forty-five (45) sites along the OTRR route and an 800 MHz Land Mobile Radio ("LMR") that provides communication access via mobile and portable radios. The costs for the Otter Tail

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400 The location of each FED, which has not changed from Opening, is shown on Otter Tail's rebuttal stick diagrams, included as Exhibit III-B-2.

401 See Otter Tail Opening at III-F-40 to III-F-41.

microwave system are based upon publicly available unit cost information from the State of Colorado Department of Transportation ("CDOT").

On Reply, BNSF included $60.41 million for the OTRR's communications system, made up of $31.44 million for the OTRR microwave system and $28.97 million for other communications investment. BNSF developed a digital wireless communications system for purposes of this proceeding and based the cost of the system on BNSF data for the OTRR line segments.[402] The differences between Otter Tail and BNSF in these areas are discussed below.

BNSF broadly criticizes Otter Tail's microwave communications system as "simply an amalgamation of information off the Internet that has no relevance to railroads and is completely lacking in design."[403] BNSF goes on to state that Otter Tail's microwave communications system is unable to meet the standards for railroad communications and is lacking in any physical architecture or system engineering design documentation.[404] Beyond this largely unsupported and general criticism, BNSF levels certain specific criticism of Otter Tail's microwave communication system including the contention that it does not provide sufficient reliability[405] and it relies on a microwave system that does not properly account for tower spacing and height along the terrain of the OTRR.[406] BNSF uses this unsupported and unfounded criticism as a precursor to the development of an alternative microwave communications system that costs three times the amount proposed by Otter Tail.

BNSF's general criticism of Otter Tail's microwave communications system is an unsupported opinion rather than a critical review of Otter Tail's Opening evidence. As discussed below, BNSF's

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402 See BNSF Reply at III.F-211.
403 See BNSF Reply at III.F-203.
404 See BNSF Reply at III.F-204 to III.F-205.
405 See BNSF Reply at III.F-205.
406 Id.

specific criticisms are also unfounded. Finally, Otter Tail demonstrates that BNSF's alternative microwave communications system is based on inaccurate information and overstated costs.

i. BNSF's Criticism of Otter Tail's Microwave Communications System is Flawed

First, BNSF's criticism that the Otter Tail microwave system is an amalgamation of Internet information with no relevance to railroads is unfounded and highlights the basic failure of BNSF to grasp the fundamental concepts that constitute the OTRR's microwave communications backbone network and LMR system design. The high level OTRR system design, predicated on an all wireless, all digital platform, complies with the Federal Railroad Administration's ("FRA") strategy for Intelligent Railroad Systems. As noted by Steven R. Ditmeyer, Director, Office of Research and Development for the FRA[407] and supported in Chapter 2 of the FRA Five Year Strategic Plan:[408]

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407 "A Vision for the Future: Intelligent Railroad Systems" by Steven R. Ditmeyer, Director of Research and Development, FRA, Washington, DC, dated November 19, 2002. See Otter Tail Rebuttal electronic workpaper "FRA-IRS.pdf".

408 See Otter Tail Rebuttal Workpaper Vol. 2, p. 6337. The entire FRA report titled "Five Year Strategic Plan for Railroad Research, Development, and Demonstrations", dated March 2002, is available at FRA's Internet site (http://www.fra.dot.gov/content3.asp?p=225).

> A theme that cuts across virtually all parts of the Federal Railroad Administration's (FRA's) R&D program is the use of sensors, computers, and digital communications to collect, process, and disseminate information to improve the safety, security, and operational effectiveness of railroads. Intelligent Transportation Systems (ITS) for highways and mass transit are based on these technologies, as are the new air traffic control and maritime vessel tracking systems. Military services, major parcel delivery companies, pipeline operators, and police, fire, and ambulance services also use these technologies. The Federal Railroad Administration and the railroad industry are working on the development of Intelligent Railroad Systems that would incorporate the new sensor, computer, and digital communications technologies into train control, braking systems, grade crossings, and defect detection, and into planning and scheduling systems as well. The FRA believes that these technologies will prevent collisions and overspeed accidents, prevent highjackings and runaways, increase capacity and asset utilization, increase reliability, improve service to customers, improve energy efficiency and emissions, increase economic viability and profits, and enable railroads to measure and control costs and to "manage the unexpected." Intelligent Railroad Systems will enable railroads to respond with flexibility and agility to rapid changes in the transportation marketplace.

The FRA framework for Intelligent Railroad Systems is premised on the same technologies used for Intelligent Transportation Systems ("ITS"). Therefore, the microwave system developed by Otter Tail is completely relevant to FRA standards and represents a "cutting-edge" strategy for reliable and efficient railroad communications.

Otter Tail also demonstrated on Opening that the network elements that comprise the backbone of the OTRR network are fundamentally the same as the network elements that make up BNSF's actual network. These network elements include: Microwave Tower; Microwave Tower Shed and Fence Enclosure; Microwave Base Station; Microwave Antenna; Microwave Network Management System; LMR Base Station; LMR Antennae; and Multiplexor Equipment. Otter Tail's network is based on the same components specified by BNSF.[409]

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[409] These are the same items listed on one of the documents used by BNSF to support its microwave costs. See BNSF Reply Workpaper BNSF.RP.WP.III.F-0687.

Otter Tail utilized actual investment costs obtained from various public sources. Otter Tail also utilized network components of an all wireless, all digital, ITS commissioned by the CDOT. Both of these sources support Otter Tail's deliberate attempt to quantify OTRR costs and structure based on market costs using publicly available information. This is in contrast to the unit costs for BNSF's proposed OTRR communications system, which are suspect because they are not adequately supported.[410]

Second, BNSF's claim that Otter Tail's microwave communications system is not relevant to railroads rings especially hollow because BNSF ultimately accepts Otter Tails's system design and proposes a microwave network based on this same design. Thus, it is not the communications system design that BNSF dislikes but, most likely, the cost of the system proposed by Otter Tail.

Third, BNSF's criticism that the Otter Tail microwave system is lacking in any physical architecture or system engineering design documentation is patently wrong. Otter Tail produced evidence on system architecture and design while BNSF did not. On Opening, Otter Tail described the interconnection of OTRR network elements.[411] In addition, Otter Tail produced the following documentation in support of its microwave backbone system: (1) OTRR's network topology diagram (with frequency coverage) for the entire system;[412] (2) a detailed network element list for the OTRR;[413] (3) OTRR network element price quotes;[414] (4) OTRR network element specifications;[415]

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410 The workpapers provided by BNSF on Reply provide limited support for the various costs of the elements that comprise the backbone of its communications system but do not provide adequate detail. As a result, BNSF's workpapers do not fully support the cost of BNSF's proposal. This lack of supporting data is discussed more fully later in this section.

411 See Otter Tail Opening at III-F-40 to III-F-41.

412 See Otter Tail Opening Workpaper Vol. 6, pp. 4634 to 4639. The 25-mile radius means that the distance between LMR antennae could be upwards of 40 to 45 miles.

413 See Otter Tail Opening Workpaper Vol. 6, p. 4633.

414 See Otter Tail Opening Workpaper Vol. 6, pp 4640 to 4669.

415 Id.

and (5) points of contact for verification of all OTRR system costs.[416] In addition, in response to BNSF's workpaper requests, Otter Tail produced detailed microwave engineering guidelines.[417] Otter Tail fully documented the components of the OTRR's microwave communications system. This is in direct contrast to BNSF, which did not produce any physical architective or system engineering design documentation for its proposed microwave communications system.

Fourth, BNSF contends that Otter Tail's microwave communications system does not provide sufficient reliability. According to BNSF, Otter Tail's system is unreliable for three reasons: (1) UHF bands utilized by Otter Tail provide insufficient coverage and are susceptible to interference by natural phenomenon; (2) UHF bands are incompatible with other railroad systems; and (3) Otter Tail's microwave equipment does not provide sufficient capacity.[418] Each of BNSF's contentions are without merit.

In the OTRR Network Topology diagram, LMR base stations and antennae were intentionally co-located with the microwave backbone network site (tower) locations, which are interspersed approximately every 30 miles along the OTRR.[419] Effective LMR signal propagation enabled by omni-directional LMR antennae has a coverage radius of 30 miles from origin.[420] The OTRR network topology conservatively assumes an LMR signal propagation coverage radius of 25 miles.[421] When the area of LMR signal propagation coverage is overlaid onto the microwave backbone network tower locations, signal overlap is maintained for the entire system. During construction of

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416 Id.

417 See "Otter Tail's Response to BNSF's Third Request for Workpapers" at pp. 9614 to 9749.

418 See BNSF Reply at III.F-207 to III.F-208.

419 1,284 route miles divided by 45 towers.

420 Actual transmission ranges can be maximized to a radius of 50 miles or more by increasing transmitter power, increasing receiver sensitivity and increasing antenna height.

421 See Otter Tail Opening Workpaper Vol. 6, pp. 4635 to 4639. The 25-mile radius means that the distance between LMR antennae could be upwards of 40 to 45 miles.

the tower sites, the OTRR will perform feasibility and frequency sweep studies to identify any "in band" frequency interference. Where necessary, the OTRR will obtain appropriate FCC and state required licensing. BNSF offered no evidence, rationale or support as to why this topology would fail to provide anything less than adequate coverage.

BNSF never demonstrated how UHF susceptibility to interference by natural phenomenon would prevent OTRR's 800 MHz LMR network from providing communication access via mobile and portable radios for operating crews, and supervisory and track maintenance personnel who need to communicate with the OTRR's operating headquarters and central dispatching facility at Donkey Creek, WY. Otter Tail notes that, in BNSF's Reply, a reference is made to evolving federal regulations stating that the FCC has licensed UHF bands to the AAR for communications involving two way end of train (EOT) devices (450 MHz) and new electronic train control operations (900 MHz).[422]

BNSF stated that VHF communications are preferred for LMR systems, but never demonstrated how VHF LMR systems overcome VHF susceptibility to interference by natural phenomenon. VHF bands can also be subject to propagation distortions due to sunspot cycles and aurora borealis, which create ionospheric ionization that can affect propagation in the lower part of the VHF spectrum.

Contrary to BNSF's view that UHF bands are unacceptable, UHF LMR communications are completely endorsed by both the FRA and the FCC. The following excerpt from the 2002 FRA Five Year Strategic Plan makes this clear:

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422 See BNSF Reply Workpapers BNSF.RP.WP.III.F-0683 to 0686.

> Following are descriptions of the components of Intelligent Railroad Systems...Digital data link communications networks provide the means for moving information to and from trains, maintenance-of-way equipment, switches and wayside detectors, control centers, yards, intermodal terminals, passenger stations, maintenance facilities, operating data systems, and customers. Data link communications will replace or supplement many of today's routine voice communications with non-voice digital messages and will effectively increase the capacity of available communications circuits and frequencies. Data link communications will utilize radio frequencies to communicate to and from mobile assets, and between locomotives in a train consist, and can use a variety of transmission media (owned either by railroads or commercial telecommunications carriers) to communicate between fixed facilities. These media include microwave radio, fiber optic cable, buried copper cable, cellular telephones, communications satellites, and even traditional pole lines. With data link communications, the information is digitally coded and messages can be discretely addressed to individual or multiple recipients. The U.S. Government, through the Federal Communications Commission, has assigned to the railroad industry 182 frequencies in the VHF band (160 MHz) and 6 pairs of frequencies in the UHF band (900 MHz). The UHF frequencies are being used for digital communications; and some railroads have converted some of their assigned VHF frequencies from analog to digital communications. The conversion is expected to accelerate during the coming decade.[423]

The FRA not only endorses an all wireless, all digital platform, it states that the Federal Communications Commission ("FCC") has allocated frequencies in both the VHF and UHF bands for digital communications. It also states that it expects the railroad industry to migrate from VHF to UHF frequencies in the coming decade. The BNSF and the OTRR must be prepared to accept this change in technology.

UHF bands are also the preferred choice for public safety infrastructure. It is common knowledge that, under Part 90 of FCC rules, specific UHF bands of operation have been classified as part of the public service safety pool. The FCC also established the National Frequency

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[423] See Otter Tail Rebuttal Workpaper Vol. 2, pp. 6337 to 6338.

Coordination Committee to address operational and technical parameters for public safety systems operating in the 700 MHz band. The FCC has also developed national and regional plans for the 700 and 800 MHz bands. The UHF bands utilized by Otter Tail provide sufficient coverage for the OTRR and are no more susceptible to interference by natural phenomenon than any other LMR system, including the one proffered by BNSF in this proceeding. In addition, a review of AAR information reveals that railroad channels have been designated in UHF and that railroads employ these channels for railroad operations.[424] Therefore, BNSF's position of UHF incompatibility does not hold true.

Although unnecessary for the reasons noted above, on Rebuttal, Otter Tail has switched from a UHF LMR system to a VHF LMR system in order to eliminate an item of contention with BNSF. However, this does not affect the costs for the OTRR's LMR system. On Opening, Otter Tail identified the base station that supports the UHF LMR system as the Motorola MTR2000. This base station can be configured for either VHF or UHF operation for the same unit price;[425] BNSF should have been aware of this as its workpapers identified this same equipment as VHF or UHF capable and contained a request for unit price information.[426] Otter Tail assumed a unit cost of $12,000 for LMR base stations which included LMR communications (via fixed radios) with Defective Equipment Detector systems. The technological decision to implement an LMR system with either VHF or UHF does not influence the system cost.[427]

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424 See Otter Tail Rebuttal electronic workpaper "AAR.pdf."
425 See Otter Tail Opening Workpaper Vol. 6, p. 4644.
426 See BNSF Reply Workpapers BNSF.RP.WP.III.F-0792 to 0797.
427 Furthermore, VHF radios for OTRR personnel cost only $455 compared to the $500 included by Otter Tail for UHF radios. See Otter Tail Opening Workpaper Vol. 4, pp. 2929 to 2930 and Opening electronic workpaper "Otter Tail_Oper_Exp.123."

The microwave backbone network utilized by Otter Tail provides more than adequate capacity for railroad operations. BNSF's criticism of the OTRR's microwave backbone capacity highlights its failure to grasp some of the simpler tenets of OTRR's design.

BNSF incorrectly characterizes Otter Tail's equipment as microwave radio equipment Alcatel MDR 8500 6 GHz which, according to the price ($22,427), is equipment with Hot-Standby having a capacity of 2 ea. DS1 signal designation[428]. Otter Tail actually identifies the microwave backbone network equipment as Alcatel Model MDR-8506-8-31-()-STCO 6 GHz, with Hot Standby Space Diversity - $32,795 and assumed $12,205 in general options.[429] The total unit cost for a microwave backbone radio is $45,000. This equipment has a capacity of 8 x DS1 which equates to 192 voice frequency channels. This is more than enough capacity to support railroad operations over the entire OTRR system.

Further, BNSF offers no support for a mandatory system capacity of DS3 or 672 voice frequency channels. However, a different configuration of the Alcatel model MDR base station, the MDR-8606-135-31-()-STCO 6 GHz, with Hot Standby Space Diversity - $42,332 and assumed $2,668 in general options could deliver a capacity of 3 x DS3 or 2,016 voice frequency channels for the same unit cost of $45,000 as the model proposed by Otter Tail.[430] This demonstrates that the technological decision of which microwave system capacity to support does not influence the system cost.

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428 See BNSF Reply at III.F-208.
429 See Otter Tail Opening Workpaper Vol. 6, p. 4661.
430 See Otter Tail Opening Workpaper Vol. 6, p. 4662.

Fifth, BNSF states that the OTRR microwave network does not take into account the proper tower spacing and tower height based on the OTRR route. BNSF's assertions in this regard are flawed. On Opening, Otter Tail specified the town and spacing (in miles) between microwave tower locations.[431] Given proper tower height and line of sight, a 6 GHZ microwave base station has a frequency range of up to 60 miles.

BNSF offers no evidence to suggest that the OTRR microwave network with its specified tower locations and heights would fail to provide adequate coverage other than a general discussion of average distances in tower location mileage and height. BNSF offers no support as to how these averages impede the working capabilities of OTRR's microwave network.

BNSF believes that the difference between the Vertical (V) and Horizontal (H) mileage between BNSF tower sites in Antelope, ND and Dickinson, ND (24 miles) and the mileage that Otter Tail assumed for its tower locations in Antelope, ND and Dickinson, ND (28 miles) is material towards discrediting the operational capability of the OTRR microwave network. BNSF is wrong.

BNSF incorrectly states that the microwave tower location data provided by BNSF for North Dakota showed seventeen actual microwave tower locations between Sentinel Butte and Fargo with a total microwave path of 350.44 miles. A more careful review of the data provided by BNSF shows that there are only sixteen BNSF microwave tower locations serving the OTRR between Sentinel Butte and Fargo. The tower location at Arthur is on the line heading north from Fargo and is not needed to serve the OTRR line. In addition, at a number of points along the OTRR system, the BNSF locates towers inordinately close. BNSF includes two towers in close proximity at Dickinson,

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[431] See Otter Tail Opening Workpaper Vol. 6, p. 4632.

Mandan and Jamestown. Properly located towers at these locations would eliminate three towers, reducing BNSF's tower count to thirteen compared to the OTRR's fifteen towers.

BNSF also criticizes the design of the OTRR microwave backbone network for using a simplifying methodology of utilizing an average line of sight based on irrelevant information. However, BNSF endorsed this same approach in developing its proposed system when BNSF states, "...in creating a hypothetical railroad microwave system, some reliance on an average system is necessary to avoid the monumental task of calculating the optimal placement of each tower site using the proper latitude and longitude for each site."[432] BNSF cannot have it both ways, i.e., criticize Otter Tail for using averages and yet base its system on averages as well.

ii. BNSF's Proposed Microwave System is Not Adequately Documented and the Costs For Network Elements are Overstated

On Reply, BNSF claims that because Otter Tail did not provide documents showing the physical architecture to support its microwave communications system, BNSF was forced to independently develop a digital wireless system for the OTRR based on the actual BNSF data for the OTRR line segments. As discussed previously, Otter Tail has shown that it provided sufficient architectural and engineering data to support its system. BNSF's system is flawed and inadequately supported.

BNSF's proposed architecture is not based on a documented physical architecture or system engineering design. The architecture makes no reference whatsoever to specifications or railroad standards. BNSF's proposed system is flawed because it is based on inaccurate assumptions; inadequately supported costs; and costs that are significantly higher than market levels.

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[432] See BNSF Reply at III.F-213.

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BNSF claims to have sampled its railroad in North Dakota and found that the microwave sites in North Dakota were representative of the entire railroad.[433] Based on the data for North Dakota, BNSF concluded that OTRR's system average tower spacing should be tower height should BNSF offers no support for how these calculations are representative of BNSF's existing microwave sites along the OTRR route. BNSF's assumptions and resulting calculations bear no resemblance to its existing operating environment. For example, using BNSF's own data, average tower height is all BNSF tower locations in Wyoming and all BNSF Montana tower locations.[434]

There is also no requirement that Otter Tail accept the network element costs provided by BNSF in discovery (and relied on, in part, by BNSF in its Reply), if Otter Tail can demonstrate lower, market-based network element costs, which it has done. As a least cost, most efficient railroad, the OTRR would obtain these network elements at the lowest cost.

The source documents provided by BNSF on Reply as workpapers supporting its inflated unit costs are inadequate and highly suspect. BNSF mistakenly equates the quantity of paper included as supporting documents with the quality of its unit cost estimates. Further, BNSF does not adequately reference the workpapers that support its calculations contained in its electronic workpapers.[435] As a result, Otter Tail was forced to search endlessly throughout BNSF's hardcopy workpapers in order to identify any documents that support BNSF's evidence.

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433 BNSF provided no documentation of any such "sample."

434 See Otter Tail Rebuttal Workpaper Vol. 2, pp. 6350 to 6353.

435 As the STB stated in FMC, it should not be necessary to search through reams of unreferenced materials in order to ascertain whether a party's position has support. (See FMC at 25).

Otter Tail's journey through BNSF's workpapers uncovered some highly suspect sources for BNSF's unit costs. The following examples demonstrate the inadequacy of BNSF's support for unit costs.

First, as support for the average unit cost of $79,410 for a microwave digital radio,[436] BNSF submits an untitled document of unknown origin that shows a unit price of $80,000 for this component.[437] Aside from the fact that these amounts do not match, Otter Tail is not able to effectively analyze or critique BNSF's unit cost because the author of this document is unknown.

Second, as support for the average unit cost of $45,000 for a BCP data radio, BNSF submits partial text from a string of e-mails between unknown parties.[438] BNSF would characterize this strand of text as a "quote." This text document (and others) of unknown authorship falls well short of a quote or company proposal to support a BCP data radio unit cost and should be rejected.

Even a cursory review of BNSF's costs demonstrates that they are grossly overstated. As shown in Table III-F-12 below, BNSF's costs for ordinary network equipment in no way reflect market conditions.

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436 See BNSF Reply electronic workpaper "III F 6 Microwave System.xls," worksheet "Microwave Towers," cell H14.

437 See BNSF Reply workpaper BNSF.RP.WP.III.F-0833.

438 See BNSF Reply workpaper BNSF.RP.WP.III.F-0701.

Table III-F-12

Comparison Of Otter Tail And BNSF Microwave Network Unit Costs

Network Component (1)	Otter Tail Costs [1] (2)	BNSF Proposed Costs (3)	BNSF Cost As A Percentage of Otter Tail Cost (4)
1. Digital Microwave Radios	$45,000	$79,410 [2]	176%
2. LMR Base Stations	$12,000	$45,000 [3]	375%
3. Antenna Material			
a. Microwave	$2,200		
b. LMR	$600		
c. Total (L3a + L3b)	$2,800	$31,200 [4]	1,114%
4. Multiplexors	$6,700	$14,195 [5]	211%
5. Tower Shed	$20,000	$36,943 [2]	184%

1 See Otter Tail Opening Workpaper Vol. 6, p. 4633.
2 See BNSF Reply electronic workpaper "III F 6 Microwave System.xls."
3 See BNSF Reply workpaper BNSF RP.WP.III.F-0701.
4 See BNSF Reply workpaper BNSF RP.WP.III.F-0703.
5 See BNSF Reply workpaper BNSF RP.WP.III.F-0696.

As shown above, BNSF's inadequately supported unit costs significantly overstate the OTRR's microwave communications system cost. Also, the microwave communications system proposed by BNSF is based on a system design that is flawed.

iii. Other Communications Costs

On Reply, BNSF includes $28.97 million for a host of additional costs for the OTRR's communications system. None of these additional costs are necessary as the components are either not needed or the costs have been included elsewhere.

BNSF includes $0.56 million for dispatching system costs (including a voice recording system). The OTRR's dispatching system costs are included in the Information Technology costs, which BNSF accepted.[439] As for the voice recording system, BNSF has not demonstrated that such a system is required.

Next, BNSF includes $1.23 million for a teleconference system and PBX telephone exchanges for the OTRR's headquarters and field locations. As discussed in Section III-D-3d (xi), supra, these items are not needed by the OTRR.

BNSF includes $19.36 million for data radio tower and equipment control points. These components are part of the CTC system and included in the CTC costs that were discussed above and accepted by BNSF on Reply. Inclusion of these monies in communications is a double-count of investment expenses.

BNSF included $5.13 million for data radio tower equipment for FED's and AEI's. Communications between AEI systems and dispatch will be facilitated through telephone land lines and the costs were included in the Operating Budget presented on Opening.[440] For the FED's, BNSF included $4 million for data radio towers and equipment. The costs for these components are highly overstated. BNSF fails to cite sources or specifications for the Data Radio Tower components concerning Control Points ($88,397), FEDs-Single ($88,397), FEDs-Double ($104,487), AEIs-Single ($139,572) and AEIs-Double ($155,662).[441] Typically, these components would include a VHF or UHF radio, an antennae and a ten (10) to twenty-five (25) foot antennae mounting pole.

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439 See Section III-D-3d (iii), supra.
440 See Otter Tail Opening at III-D-47 and Otter Tail Opening electronic workpaper "OTRR-Operating Budget.xls."
441 See BNSF Reply electronic workpaper "III F 6 Microwave System.xls".

BNSF lists this type of equipment in its break out of microwave site components as VHF Radio ($7,200) and VHF Antenna ($3,200).[442] From the same workpaper, if these components were mounted on a 200-foot guyed tower ($60,000), which is completely unnecessary, the resulting investment cost would be only $70,400, which is substantially less than the costs used by BNSF. As noted previously, the author of these documents and sources for these unit prices are unknown; therefore, Otter Tail is unable to effectively analyze or critique BNSF's unit costs. However, to enable communications to OTRR's fourty-four (44) failed equipment detector locations, Otter Tail accepts BNSF's costs for a VHF radio ($7,200) and VHF antennae ($3,200) and has included them on Rebuttal.

Finally, BNSF includes $2.56 million for EOTD equipment and two-way radios for operating personnel. Otter Tail has included the costs for EOTD equipment and two-way radios in the OTRR operating expenses.[443] These costs are discussed in Section III-D-3a (iii), supra.

iv. Summary of Communications Costs

BNSF's criticisms of Otter Tail's microwave communications system are unfounded, arbitrary and without merit. The communications system developed by BNSF on Reply is largely unsupported and significantly over-priced. BNSF also included unnecessary costs and costs already included elsewhere, failing to recognize inappropriate double-counts.

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442 See BNSF Reply workpaper BNSF.RP.WP.III.F-0687.

443 See Otter Tail Opening electronic workpaper "Otter Tail_Opr_Exp.123" and Otter Tail Rebuttal electronic workpaper "Otter Tail_Opr_Exp_Reb.xls."

As explained above, the OTRR's communications system is fully functional, applicable to railroad communications and the best evidence of a least-cost communications system for the OTRR. On Rebuttal, Otter Tail includes $12.33 million for the OTRR's microwave communications system.

7. **Buildings And Facilities**

On Opening, Otter Tail included $31.51 million for the buildings and facilities necessary to support the efficient operation of the OTRR[444]. On Reply, BNSF completely redesigned the buildings and facilities developed by Otter Tail on Opening, based upon current BNSF operating plans, building design, and structures, thus including $77.15 million for buildings and facilities for the OTRR.

On Reply, BNSF claims that the OTRR facilities are inadequate and fail meet the needs of the OTRR traffic base and its personnel.[445] BNSF's criticisms of the Otter Tail operating plan and associated buildings and facilities are centered on the size and quantity of Otter Tail's facilities, the methodology utilized by Otter Tail to calculate certain building costs, and buildings and facilities that were excluded in the Otter Tail operating plan.

Otter Tail's response to BNSF's criticism of its operating plan is set forth in Sections III-B and III-C, supra. This section addresses BNSF's criticisms of the OTRR buildings and facilities developed by Otter Tail on Opening.

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444 See Otter Tail Opening at III-F-43 to III-F-45.
445 See BNSF Reply at III.F-222.

a. Servicing/Fueling and Repair Facilities

i. Servicing/Fueling Facilities

On Opening, Otter Tail included $13.50 million for the locomotive servicing and fueling facilities at Donkey Creek Yard and Glendive yards. As BNSF did not provide any cost information in discovery in response to Otter Tail's Request for Production No. 81,[446] Otter Tail developed the cost for the servicing and fueling facilities using publicly available cost information contained in TMPA.[447]

On Reply, BNSF included $39.68 million for three locomotive servicing and fueling facilities at Donkey Creek, Glendive and Mandan yards. BNSF also included fueling facilities at Converse Yard and Dutch, WY. BNSF states that it based its design for the Donkey Creek, Glendive and Mandan locomotive fueling facilities on the BNSF locomotive fueling facility at Hauser, ID. BNSF developed the cost of these facilities based upon unit prices for similar facilities, estimated quantities of construction materials and equipment needed for each OTRR facility, and lump sum construction prices for the Hauser fueling facility.[448]

BNSF designed the Converse and Dutch locomotive fueling facilities based upon fueling locomotives from a tank truck. BNSF developed the cost of these facilities based upon unit prices of similar facilities and quantities of construction materials and equipment to develop the cost of these fueling facilities.[449]

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446 Otter Tail's Request for Production No. 81 asked for documents showing the cost of various facilities such as locomotive servicing facilities, roadway maintenance facilities, etc.

447 See Otter Tail Opening at III-F-43 to III-F-44 and electronic workpaper "LocoFuel_facility.xls."

448 See BNSF Reply at III.F-226.

449 See BNSF Reply at III.F-227.

In addition, on Reply, BNSF included $4.10 million for wastewater treatment facilities at Donkey Creek, Glendive and Mandan. BNSF's costs for the locomotive servicing and fueling facilities and wastewater treatment facilities are unsupported, overstated and erroneous for at least five (5) reasons.

First, the additional locomotive fueling facilities prescribed by BNSF at Mandan, Converse and Dutch are not necessary for the efficient operation of the OTRR. BNSF has not demonstrated that the design and the operation of the locomotive fueling facilities developed by Otter Tail on Opening are deficient or defective. On Reply, BNSF simply suggests a "more is better" approach to locomotive fueling facilities. As discussed in Section III-B-3f, supra, the fueling facility at Mandan is not necessary. Furthermore, fueling facilities are not required at Converse Yard and Dutch as any necessary fueling will be done by truck. This involves pulling a fuel truck up beside the tracks and extending a hose from the truck to the locomotive. It is not dissimilar to fueling a car at a gas station. Furthermore, these fuelings will not always take place at the same exact location. No additional facilities are necessary at either location.

Second, the unit costs and the quantities of construction material and equipment utilized by the BNSF are unsupported.[450] For example, BNSF submitted in its Reply electronic workpapers a spreadsheet that develops, in part, the building cost calculation for the locomotive fueling platform at Glendive.[451] The BNSF calculations for Glendive alone include over four hundred and fifty (450)

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450 BNSF did not provide any supporting documentation for its building cost calculations. Otter Tail submitted several workpaper requests and BNSF refused to provide additional support in response to these requests. See "BNSF's Responses and Objections To Otter Tail's Fifth Request for Workpapers", where BNSF stated that it refused to provide responses to several requests including Request Nos. 63 through 69.

451 See BNSF Reply electronic workpaper " III F 7 Facilities.xls, Sheet "Locomotive Fuel-Glendive." BNSF's electronic workpapers also include undocumented construction quantities and unit costs for its proposed fueling facilities at Donkey Creek, Mandan, Converse and Dutch.

separate calculations, which include individual construction quantities and associated unit costs that are largely unsupported by the workpapers provided by BNSF. Without the detailed workpapers that identify the assumptions and methodology utilized to calculate the construction quantities or the source documents supporting the unit costs utilized by BNSF, Otter Tail is unable to effectively review or critique the BNSF calculations. On this basis alone, BNSF's evidence should be rejected.

Third, BNSF's criticism of the design of the Donkey Creek facility is also unfounded and reflects a lack of understanding of the locomotive fueling operations at Donkey Creek. On Reply, BNSF included a third fueling platform at Donkey Creek because two fueling platforms cannot physically serve five tracks.[452] While BNSF's math is correct, i.e., two fueling platforms cannot serve five tracks, BNSF is wrong in concluding that an additional fueling platform is required at Donkey Creek. The number of fueling platforms at Donkey Creek is based on the traffic level. As Donkey Creek handles less traffic than Glendive, it requires only two fueling platforms while Glendive requires three fueling platforms. BNSF's addition of a fueling platform at Donkey Creek, is not operationally necessary. BNSF makes no demonstration that a third fueling platform is necessary at Donkey Creek but adds one simply because the rail is already in place. This logic is improper because it is not based on the operational needs of the OTRR.

Fourth, BNSF's criticism of Otter Tail's reliance on the publically available cost information for fueling facilities that was accepted by the STB in TMPA is specious. As noted earlier, Otter Tail specifically requested cost and quantity information on locomotive fueling and servicing facilities from BNSF in discovery. BNSF failed to provide responsive data. BNSF's claim that it is

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[452] See BNSF Reply at III.F-236.

impossible to determine whether Otter Tail's arrangement is appropriate for the OTRR is also suspect. BNSF was the defendant railroad that developed the costs that were ultimately accepted by the STB in TMPA and, as such, has in its possession all of the assumptions, quantities and unit costs used to develop the TMPA costs.[453] In relying on BNSF-developed costs that were accepted by the STB in TMPA, Otter Tail was simply relying on the most current BNSF data available. BNSF's criticism of the costs accepted by the STB in TMPA should be rejected.[454]

Fifth, BNSF's inclusion of facility costs for wastewater treatment plants at fueling platforms in Donkey Creek, Glendive and Mandan is unfounded and unsupported. BNSF's only support for including wastewater treatment plants is its contention that such facilities are "a necessary and practical expense."[455] BNSF provides no other support for the inclusion of these facilities. BNSF has made no demonstration in this proceeding that such facilities are required by local, state or federal agencies.[456] Additional research by Otter Tail failed to unearth any requirements for these facilities. Absent any supporting documentation from BNSF, Otter Tail has not included any costs for these facilities.

On Rebuttal, Otter Tail has continued to include $13.5 million for the locomotive servicing and fueling facilities at Donkey Creek Yard and Glendive Yard.

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453 See TMPA at 146.

454 BNSF's inflated fueling costs in this matter are demonstrated by its calculation of the cost of building additional fueling platforms at Donkey Creek and Mandan. In TMPA, the STB noted that BNSF's own workpapers indicated that any additional fueling platform built at the same location would cost approximately 46% less that the cost of building the initial fueling platform (See TMPA at 146). In its Reply workpapers in this proceeding, however, BNSF utilizes the same building cost for all platforms built at the same location instead of reducing the cost for additional fuel platforms (See BNSF Reply electronic workpaper "III F 7 Facilities.xls, worksheets "Locomotive Fuel-Donkey Crk", "Locomotive Fuel-Glendive", and "Locomotive Fuel-Mandon").

455 See BNSF Reply at III.F-237.

456 In TMPA, the STB accepted BNSF's inclusion of investment for wastewater treatment plants because BNSF based the cost on expenditures it was required to make in Clovis, NM for compliance with its discharge permit. Clovis, NM is not a location on the OTRR. BNSF has not provided any evidence in this proceeding of the need for a waste water treatment facility at any location on the OTRR.

ii. Locomotive Repair Shops

On Opening, Otter Tail included $8.98 million for the locomotive repair facility located at Donkey Creek Yard. Otter Tail developed its cost based on the cost for such a facility from TMPA.[457]

On Reply, BNSF included $13.47 million for a locomotive repair shop located at Donkey Creek. BNSF's locomotive repair shop design was based on track lengths provided by OTRR and the general arrangement of similar BNSF locomotive maintenance facilities. Costs for BNSF's locomotive repair shop were developed using a combination of unit prices from BNSF cost estimates, unit prices from current budget quotations from equipment manufacturers, Means Handbook unit prices and quantities taken from facility design drawings.[458] BNSF's costs are overstated and erroneous for the following five (5) reasons.

First, BNSF's criticism of Otter Tail's reliance on the publically available cost information for a locomotive repair facility that was accepted by the STB in TMPA is specious. Otter Tail specifically asked BNSF in discovery for cost and quantity information for locomotive repair facilities. BNSF failed to provide the requested information in response to Otter Tail's discovery requests. BNSF was the defendant railroad that agreed to the locomotive repair facility costs ($65/sq ft.) that were ultimately accepted by the STB in TMPA. In relying on costs that were accepted in TMPA, Otter Tail was relying on the most current BNSF cost data available. In TMPA, the STB accepted a "47,000 SF locomotive repair shop capable of repairing 16 locomotives at one time."[459]

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457 See Otter Tail Opening Workpaper Vol. 6, pp. 4732 to 4733 and electronic workpaper "Locofuel_facility.xls," worksheet "Loco_facility."

458 See BNSF Reply at III.F-226.

459 See TMPA at 144.

Based on this, OTRR's same-sized facility would be more than adequate to handle the 10 locomotives that would be in the OTRR's repair shop at any one time.[460] Once again, BNSF's criticism of the costs accepted by the STB in TMPA should be rejected.

Second, BNSF's claim that the locomotive repair shop building at Donkey Creek would enclose an area of 68,000 square feet rather than the 47,000 square foot shop proposed by Otter Tail on Opening is patently false.[461] BNSF wrongly based its calculations for a 68,000 square foot facility on the assumption that the entire system of rail trackage included with the locomotive shop would be located within the locomotive shop building.[462] It is not cost-effective or operationally necessary to enclose all of the trackage that Otter Tail allocated to the locomotive maintenance facility. The locomotive maintenance building designed by Otter Tail is large enough to enclose sufficient trackage to facilitate the repair of sixteen (16) locomotives and the associated office/storage facilities described by Otter Tail on Opening.[463] Contrary to BNSF's contention, the 47,000 square foot structure proposed by Otter Tail on Opening is adequate for the OTRR locomotive repair shop building.

Third, BNSF's claims that the shop arrangement proposed by Otter Tail on Opening is an old and inefficient design that does not conform to standard design practices as presented by AREMA is baseless and arbitrary. It is contradictory for BNSF to argue on the one hand that Otter Tail's use of TMPA costs leave BNSF Engineering Consultants unable to determine what costs are included

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460 OTRR's rebuttal locomotive fleet of 194 locomotives times Otter Tail's five percent spare margin.

461 See BNSF Reply at III.F-238.

462 BNSF apparently assumes that the building would have a width of 400 feet and a length of 170 feet (400 ft. x 170 ft. = 68,000 sq. ft.)

463 See Otter Tail Rebuttal Workpaper Vol. 2, p. 6336 for one of many potential layout options for the OTRR locomotive maintenance facility at Donkey Creek. This particular layout results in a total building size of approximately 46,750 square feet. This facility also accommodates locomotives that are 80 feet long as assumed by the BNSF although the actual overall length of an SD70MAC is 74 feet.

in Otter Tail's locomotive facility costs,[464] while at the same time argue that the Otter Tail locomotive facility is inefficient and not up to AREMA standards.[465] In any event, there is absolutely no statutory requirement that the stand-alone facilities constructed for the OTRR exactly match the suggested AREMA design criteria. In fact, the AREMA Manual for Railway Engineering specifically notes that the design criteria it sets forth for diesel repair facilities "is not intended to imply that other practices may not be equally acceptable."[466] Regardless, the OTRR locomotive maintenance facility meets certain AREMA design criteria.[467]

Fourth, BNSF included costs for a wash house, pump house, pipe racks, storage containment structure, wastewater pretreatment building, sewer lines, staging/lead tracks and concrete walkways. As these facilities are not specifically identified in TMPA, Otter Tail assumed that the locomotive repair facility in TMPA, based on BNSF's evidence, includes these facilities.[468]

On Reply, BNSF argues that the OTRR's locomotive facility must include a separate wash house because "a railroad can be fined by the Federal Railway Administration ("FRA") if a locomotive is dirty"[469] and because BNSF has added wash houses to certain BNSF locomotive shops since 1991.[470] Regarding FRA regulations, while BNSF has provided some support for the description of the "general condition" of locomotive systems and components, BNSF has failed to

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464 See BNSF Reply at III.F-241.
465 See BNSF Reply at III.F-238.
466 AREMA Manual for Railway Engineering - Design Criteria for Diesel Repair Facilities (Section 4.1.1 a.) as provided in BNSF Reply Workpaper BNSF.RP.WP.III.F-0966.
467 See Otter Tail Rebuttal Workpaper Vol. 2, p.6336. This particular layout complies with the AREMA design criteria for diesel repair facilities related to track length and track spacing.
468 BNSF did not state that the TMPA locomotive repair facility did not include these facilities, something it could have done because, as previously noted, BNSF has all the information related to the TMPA locomotive repair facility.
469 See BNSF Reply at III.F-239.
470 Id.

show that the FRA is permitted to fine a railroad for not meeting these "general conditions."[471] Furthermore, BNSF's claim that wash houses were added to three BNSF locomotive facilities in no way creates the requirement that wash houses must be included on the OTRR[472] and, in fact, undermines BNSF's claim about FRA regulations, since clearly some of BNSF's facilities do not have wash houses.

Fifth, BNSF's calculation of locomotive shop construction quantities and unit costs is largely unsupported. Without the detailed workpapers to identify the assumptions and methodology utilized to calculate the construction quantities or the source documents supporting all of the unit costs utilized by BNSF, Otter Tail is unable to effectively review or critique BNSF's calculations. On this basis alone, BNSF's unsupported evidence should be rejected.

On Rebuttal, Otter Tail continues to include $8.98 million for the OTRR's locomotive repair facility at Donkey Creek.

iii. Car Repair Shop

On Opening, Otter Tail did not include costs for a car repair facility. On Reply, BNSF included $4.63 million for car repair shops located at Donkey Creek and Glendive.

BNSF's car repair shops were based on AREMA design criteria and the general arrangement of the Railcar Service Center at Springville, Utah.[473] Costs for BNSF's car repair shops were based

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471 BNSF Reply workpaper BNSF.RP.WP.III-F-0986 represents one subsection of 49 CFR - Chapter II - Part 299 describing the "general condition of all systems and components for locomotives. This subsection sets forth very general and generic reference to "leaks and accumulations of oil on electrical equipment that create a personal injury hazard." This subsection does not mention any FRA fines or other penalties.

472 BNSF has failed to provide any support in its Reply workpapers to confirm that "wash houses have been added to BNSF locomotive shops at North Kansas City, MO; Topeka, KS; and Corwith, IL" or at "UP's locomotive shop at Hinkle, OR" (See BNSF Reply at III.F-239)

473 See BNSF Reply at III.F-227.

on Means Handbook unit prices, unit price quotations from suppliers and unsupported quantities developed by BNSF. BNSF's inclusion of costs for a car repair facility is unnecessary and improper.

On Reply, BNSF claims that Association of American Railroads (AAR) interchange rules make OTRR responsible for repairs to any railcars accepted in interchange.[474] Otter Tail has never represented that the OTRR was not responsible for car repairs. Car repair rip tracks have been included at both Donkey Creek and Glendive yards. Otter Tail's car costs are based on full service leases meaning that the lease rates include monies for maintenance and that the lessor arranges and pays for the maintenance.[475]

Otter Tail has identified three independent railcar repair facilities that are located near or on the OTRR that could provide railcar repair service for the OTRR's cars as well as any private cars accepted for interchange by the OTRR.[476] As there are nearby car repair contractors and Otter Tail has included the monies for car maintenance (in the lease rates) and provided rip tracks at Donkey Creek and Glendive yards, there is absolutely no need for OTRR to construct separate car repair facilities.[477] This is exactly what the STB found in its recent decisions.[478] Accordingly, Otter Tail has not included any investment costs for car repair facilities on the OTRR.

b. Other Buildings

On Opening, Otter Tail included $9.03 million for other buildings, including a headquarters building, crew change buildings and maintenance-of-way buildings. On Reply, BNSF included

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474 See BNSF Reply at III.F-242.
475 See Section III-D-2-a-ii, infra.
476 These locations are Bill, WY, Miles City, MT and Fargo, ND. See Otter Tail Rebuttal Workpaper Vol. 2, pp. 6355 to 6363.
477 Furthermore, as discussed in Section III-B-3, supra, there is no need to enclose the OTRR's rip tracks.
478 See Duke-NS at 118; CP&L at 102.

$15.27 million for similar facilities. BNSF's adjustments to Otter Tail's opening calculations for other buildings on the OTRR are incorrect as explained below.

i. Headquarters Building

On Opening, Otter Tail included $1.93 million for OTRR's headquarters building (including the OTRR's dispatch center) at Donkey Creek, WY. The OTRR's headquarters building was sized for the personnel requirements of the OTRR as designed by Otter Tail.

On Reply, BNSF included $2.67 million for the OTRR's headquarters building. The differences between Otter Tail's costs and BNSF's costs are discussed below.

First, BNSF did not accept the cost per square foot utilized by Otter Tail for the OTRR's headquarters building.[479] BNSF's rejection of Otter Tail's methodology is apparently based upon a misunderstanding of Otter Tail's methodology and BNSF's incorrect application of the Uniform Building Code ("UBC") standards. BNSF's main criticism is that Otter Tail's construction design does not meet UBC design standards. BNSF is wrong.

The OTRR's headquarters building is a two-story office building[480] totaling 24,218 square feet in size.[481] Otter Tail used the average of the Means Handbook square foot costs for a building with an exterior wall of glass and metal curtain and frame construction of reinforced concrete and the square foot costs for a building with an exterior wall of wood siding and frame construction of wood.

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479 See BNSF Reply at III.F-229.

480 BNSF apparently did not understand that the OTRR's headquarters is a two-story building. This is most likely the basis of its incorrect conclusion that the "building has two complete exterior wall and framing systems" (See BNSF Reply at III.F-226).

481 BNSF's claim that the OTRR headquarters building is based on a 20,000 square foot facility is incorrect. (See BNSF Reply at III.F-229). Otter Tail's workpapers clearly support the fact that the OTRR headquarters building is based on a 24,218 square foot facility. (See Otter Tail Opening electric workpaper "OTRR_bldgs.xls", Sheet "Costs", Column (F), Line 8).

The purpose of the average was to reflect that the type of building would be determined after site visits during the design phase of the OTRR.[482]

BNSF claims that the headquarters building developed by Otter Tail could not be a multi-story building of Type III or Type III-N as defined by the UBC. BNSF bases its conclusion that "the maximum area of a multi-story building of Type III (one-hour fire resistance) and Type III-N (no fire resistance) is 18,000 and 12,000 square feet, respectively" on its incorrect reading of the data contained in Table 5-B (Page 1-59) of the UBC. Table 5-B is titled "Basic Allowable Building Heights And Basic Allowable Floor Area *For Buildings One Story In Height.*"[483] [emphasis added]. The UBC limitations referenced by BNSF are for one story buildings and not for multi-story buildings. For multi-story buildings, like the OTRR's headquarters building, the maximum area is defined by the following UBC section:

> "**504.2 Areas of Buildings over One Story**. The total combined floor area for multistory buildings may be twice that permitted by Table 5-B for one-story buildings, and the floor area of any single story shall not exceed that permitted for a one-story building."[484]

Thus the maximum area of *any single floor* of the OTRR headquarters is 18,000 square feet for a Type III (one-hour fire resistance) building. The maximum area of the two-story OTRR headquarters is 36,000 square feet. Contrary to BNSF's claims, the headquarters building developed by Otter Tail on Opening indeed meets the design standards and construction practices promulgated by the UBC.

Second, BNSF's adjustments to Otter Tail's costs for lighting at the headquarters building are arbitrary and unsupported. BNSF added costs for light pole foundations, cross arms for mounting

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482 In all likelihood, the building would be a less expensive wood building but, to be conservative, Otter Tail used the average of the costs for two building types.

483 See BNSF Reply Workpaper BNSF.RP.WP.III.F-0946.

484 Id. Footnote 1 of Table 5-B directs the reader to Section 504.2 of the UBC. See Otter Tail Rebuttal Workpaper Vol. 2, p. 6366.

two lighting fixtures to a single pole, and replaced Otter Tail's mercury vapor lights with a low sodium fixture. BNSF argues that all of these changes are necessary to "provide an adequate level of illumination to promote safety."[485] On Reply, BNSF does not describe what type of "safety" it is promoting and BNSF fails to show that the lighting system developed by Otter Tail on Opening is inadequate, improper or unsafe. Instead, consistent with its approach in virtually every other construction cost category, BNSF simply computes costs based on its "more-is-better" approach.

Third, BNSF's adjustment of Otter Tail's chain link fencing at the headquarters building is meaningless and unsupported. In an effort to increase costs ever so slightly, BNSF claims that security concerns mandate a six-foot fence with a barbed wire topper.[486] BNSF has not provided any information or statistics showing that crime rates in Donkey Creek warrant the additional costs proposed or that the fence included by Otter Tail is inadequate or insufficient. As a result, Otter Tail makes no change to the fencing system it proposed on Opening.

On Rebuttal, Otter Tail has continued to include $1.93 million for the OTRR headquarters building.

ii. Crew Change Buildings

On Opening, Otter Tail included $2.81 million for nine (9) crew change facilities.[487] The OTRR's crew change buildings were sized for the personnel requirements of the OTRR as designed by Otter Tail. The average cost of an Otter Tail crew change building is approximately $310,000 per building.[488]

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485 See BNSF Reply at III.F-232.

486 Id.

487 Crew change facilities are located at Donkey Creek, WY, Converse Yard, WY, Dutch, WY, Moran Junction, MT, Snowden, MT, Glendive, MT, Mandan, ND, Fargo, ND, and Benson, MN.

488 $2.80 million ÷ 9 crew change buildings = $310,000 per crew change building.

On Reply, BNSF accepted Otter Tail's crew change locations but increased the crew change building costs to $3.42 million. The average cost of a BNSF crew change building is approximately $380,000 per building.[489] BNSF's adjustments to Otter Tail's costs for crew change buildings are erroneous for at least two reasons.

BNSF's criticism of the methodology utilized by Otter Tail to calculate the cost of crew change building is apparently based on an incomplete understanding of Otter Tail's calculations. It is the same criticism that BNSF directed towards Otter Tail's headquarters building calculations, i.e., BNSF disagreed with Otter Tail's use of an average cost from the Means Handbook. BNSF's criticism of Otter Tail's crew change buildings costs are invalid for the same reasons.

Otter Tail calculated the cost for these buildings based on an average of three types of unit costs from the Means Handbook - a 2,000 SF garage, a 6,000 SF garage and a 10,000 SF warehouse. The average was used to reflect both the different size buildings that the OTRR would require and the different uses of each building. BNSF maintains that Otter Tail's use of the 10,000 SF warehouse in developing the average is inappropriate because the storage areas of these facilities are small. BNSF's logic is incorrect. Otter Tail included the warehouse cost in the average to account for the fact that these facilities are not just garages.

Second, BNSF's adjustments to Otter Tail's square foot pricing to upgrade to durable industrial construction and to incorporate premium chain link fencing and lighting are unnecessary and unsupported. On Reply, BNSF fails to show that the quality of construction, fencing system or

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[489] $3.42 million ÷ 9 crew change buildings = $380,000 per crew change building.

lighting system developed by Otter Tail on Opening for OTRR crew change buildings is inadequate, improper or unsafe. Neither does BNSF show that its changes are necessary.

On Rebuttal, Otter Tail has continued to include $2.81 million for the OTRR crew change buildings.

iii. Maintenance-of-Way Buildings

On Opening, Otter Tail included $4.29 million for fourteen (14) maintenance-of-way facilities.[490] The OTRR's buildings were sized for the personnel requirements of the OTRR as designed by Otter Tail. On Reply, BNSF included $9.18 million for twenty-nine (29) maintenance-of-way facilities.[491]

The primary difference between the Otter Tail and BNSF for the total cost of maintenance-of-way facilities is the number of facilities required.[492] Otter Tail's average cost per MOW building is $306,389.[493] BNSF's average cost per MOW building is $316,646.[494] This is a difference of only $10,000 per facility. As explained in Section III-D-4, supra, the additional MOW facilities prescribed by BNSF are not necessary for the efficient operation of the OTRR. Otter Tail continues to utilize the number and type of facilities for MOW buildings that were developed on Opening.

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490 Otter Tail's maintenance-of-way facilities are located at Donkey Creek, WY, Reno, WY, Kendrick, WY, Sheridan, WY, Rowley, MT, Hysham, MT, Shirley, MT, Sidney, MT, Glendive, MT, Dickinson, ND, Mandan, ND, Jamestown, ND, Fargo, ND and Herman, MN. See Otter Tail Opening at III-F-42 to 43 and Opening Errata electronic workpaper "OTRR_bldgs.xls."

491 BNSF's maintenance-of-way facilities are located at Donkey Creek, WY, Converse Yard, WY, Reno, WY, Kendrick, WY, Sheridan, WY, Hysham, MT, Sidney, MT, Glendive, MT, Mandan, ND, Jamestown, ND, Fargo, ND, Herman, MN, Benson, MN, Lariat, WY, Parkman, WY, Crow Agency, MT, Huntley, MT, Big Horn, MT, Nichols, MT, Miles City, MT, Terry, MT, Beach, ND, Sully Springs, ND, Richardton, ND, Steele, ND, Medina, ND, Valley City, ND, Breckenridge, MN, and Big Stone, SD.

492 BNSF claims that all of the criticisms it made with respect to crew change and yard change buildings apply to MOW buildings (See BNSF Reply at III.F-236). Otter Tail disagrees with BNSF's claims for the same reasons stated previously in this section.

493 $4,289,055 ÷ 14 MOW buildings = $306,389 per MOW building.

494 $9,182,753 ÷ 29 MOW buildings = $316,646 per MOW building.

On Rebuttal, Otter Tail has continued to include $4.29 million for the OTRR maintenance-of-way buildings.

8. Public Improvements

a. Fences

On Opening, Otter Tail included $18.14 million in investment for fences for the OTRR. The quantities were based on the Orin Line and Eagle Butte Branch construction documents and the ICC Engineering Reports. Unit costs were based on Department of Transportation ("DOT") bids for the states traversed by the OTRR and the Means Handbook.[495]

On Reply, BNSF included $21.45 million for fences. BNSF accepts Otter Tail's methodology for determining fence quantities[496] and Otter Tail's unit costs for all fencing except snow fences.

BNSF states that Otter Tail neglected to include snow fences shown on the ICC Engineering Reports for valuation section CMSP-5-SD. Otter Tail has included these quantities on Rebuttal.[497] BNSF did not accept Otter Tail's unit cost for snow fences, stating that it was unsupported. This is untrue. While Otter Tail inadvertently omitted a hard-copy of the Means Handbook page showing the unit cost Otter Tail used, the Means Handbook line item number was included in Otter Tail's opening electronic workpapers.[498] BNSF is intimately familiar with the Means Handbook and could

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495 See Otter Tail Opening at III-F-44, Opening Workpaper Vol. 6, pp. 4737 to 4740 and Opening electronic workpaper "OTRR Fencing.xls."

496 There are minor differences in quantities due to BNSF's overstated route miles.

497 The omission noted by BNSF is a grand total of one snow fence panel, 25 feet in length. This panel was listed on the ICC Engineering Report under the Grading account and not under the Fence account. This lone panel has been added to the 459,757 feet of snow fence included by Otter Tail on Opening.

498 See Otter Tail Opening electronic workpaper "OTRR Fencing.xls", worksheet "Unit Costs."

have looked up the unit cost itself.[499] As BNSF did not criticize Otter Tail's unit cost, Otter Tail has continued to use it on Rebuttal.

On Rebuttal, Otter Tail has included $18.15 million for fence investment for the OTRR.

b. Roadway Signs

On Opening, Otter Tail included $0.41 million for roadway signs. Otter Tail included signs for mileposts, whistle posts, stations, yard limits, speed restriction, advanced warning, resume speed and flangers (at rail lubricator and DED locations).[500] On Reply, BNSF included $0.72 million for roadway signs. The difference is due to differences in both quantities and unit cost.

The difference in quantities is for milepost signs, derail signs, highway direction signs at yards and flanger signs.[501] The difference in milepost signs is caused by BNSF's elimination of much of the passing track in the southern section of the Orin Line, thereby reducing the need for mileposts on both sides of the track. As Otter Tail has not eliminated this track, it has not accepted BNSF's reduction in the number of milepost signs. Otter Tail has not included derail signs because, as discussed supra, derails are not necessary for the OTRR. Otter Tail has not included highway direction signs at yards as they are not required and unnecessary.

The primary difference in sign quantities is for flanger signs. BNSF states that, in areas of heavy snowfall, flanger signs need to be placed in advance of either end of all crossings, bridges with inner guardrails, turnouts, FED's and rail lubricators.

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499 Otter Tail has included a hard-copy of this page in its Rebuttal filing. See Otter Tail Rebuttal Workpaper Vol. 2, p. 6371.

500 See Otter Tail Opening at III-F-44.

501 BNSF Reply at III.F-247 identifies several other types of signs that BNSF claims are necessary but none of them were included in BNSF's costs. Otter Tail's engineering expert, Mr. McDonald, believes that, based on his experience, these signs are paid for by local state or federal government agencies. Therefore, consistent with BNSF's position, Otter Tail has not included them in its costs.

Opening, Otter Tail's methodology was consistent with that decided by the STB in McCarty, WPL and PPL.[504]

On Reply, BNSF included $10.03 million for at-grade highway crossings and $3.54 million for crossing protection for a total of $13.57 million. BNSF accepted Otter Tail's unit costs but substantially increased the quantities. BNSF contends that the OTRR is required to construct the crossings and provide the crossing protection devices for the OTRR main lines west and north of Donkey Creek. BNSF maintains that this is necessary because the ICC Engineering Reports show investment for highway crossings at-grade and is also consistent with TMPA.

Based on a comparison of the number of at-grade crossings contained on the ICC Engineering Reports[505] with the number of crossings that currently exist on the OTRR main lines west and north of Donkey Creek, BNSF determined that the number of crossings was higher than what exists today on these same lines. Therefore, BNSF included 100 percent of the costs for all of the at-grade crossings currently in place. BNSF also includes five percent of the costs for the flashers and gates it identifies on these same lines.

BNSF's reliance on the ICC Engineering Reports as proof that the railroads paid for the at-grade highway crossings is misplaced. First, the fact that crossings are listed in the ICC Engineering Reports does not establish that the crossings were even present, or necessary, when the lines were originally constructed. The ICC Engineering Reports are a snapshot of the assets in place at the time of the inventory in the 1910's. However, these lines were constructed many decades before this

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504 See Otter Tail Opening at III-F-44 to III-F-45.

505 BNSF develops a count of the number of crossings by calculating an estimated amount of wood planking required by each crossing and dividing that into the total amount of wood planking contained in the ICC Engineering Reports for the valuation sections corresponding to the OTRR route. See BNSF Reply at III.F-249 and BNSF Reply electronic workpaper "III F 8 ICC Crossings.xls."

snapshot inventory. Based on other information contained in the ICC Engineering Reports, such as the dates for the construction of bridges and other structures, these lines were constructed as early as 1875.[506] At that time, vehicular traffic was minimal, as was the need for crossings. Furthermore, the ICC and STB have held that the party crossing the existing right-of-way is responsible for the cost of the crossing.[507]

The fact that the crossings are listed on the ICC Engineering Reports does not confirm that the railroad paid for them. The ICC Engineering Reports do not accurately indicate the level of financial responsibility of the railroad, particularly with respect to items that another entity may have paid for, such as at-grade crossings. The purpose of the ICC Engineering Reports was to identify those assets in place that should be considered in determining the replacement costs of the railroad. The intent of the guidelines for inclusion of items was to include only those items paid for by the railroad. However, this was not always adhered to as the information necessary to make this determination was not always available. This is particularly true with respect to at-grade crossings where other entities may have paid for all or a part of the costs for such crossings.

The ICC recognized this limitation of the ICC Engineering Reports when they were challenged in Texas Midland Railroad,[508] stating:

> "It sometimes happens that quantities cannot be identified so as properly to comply with the above rule, and in such cases the actual quantities which are found at the present time upon the carrier's right of way are placed and priced in to the engineering inventory."

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506 See Otter Tail Rebuttal Workpaper Vol. 2, pp. 6371 to 6384. In addition, The History of the Burlington Northern by Bill Yenne shows construction in 1873 between Fargo and Mandan, ND.

507 See McCarty 2 S.T.B. 460, 520 (1997); WTU 1 S.T.B. 638, 672 (1996).

508 See Texas Midland Railroad, 75 I.C.C 1, 115 (1918).

As a result of placing the asset into the engineering inventory, the railroad was credited with the entire cost of the asset even if it had paid nothing. Based on this, the listing of at-grade highway crossings on the ICC Engineering Report is not a clear indication, by any stretch of the imagination, that the railroad indeed incurred the cost of the asset.

BNSF's inclusion of five percent of the costs for the flashers and gates on the OTRR main line segments west and north of Donkey Creek is also improper. BNSF has not provided any evidence demonstrating that either BNSF or its predecessors incurred the initial investment costs for these items.

On Rebuttal, Otter Tail continues to include the costs for only those crossings on the recently constructed segments, i.e., the OTRR main line south of Donkey Creek and the five coal mine branches. Otter Tail's position is supported by numerous prior ICC and STB decisions.[509] Indeed, Otter Tail's position is even supported by TMPA, where the STB disallowed the inclusion of costs for surfacing for road detours on the line segments south of Bridger Junction.[510] On Rebuttal, Otter Tail has included $3.90 million in investment for at-grade highway crossings and crossing protection for the OTRR.[511]

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509 See WPL at 89; FMC at 127; PPL at 31.

510 See TMPA at 122-123.

511 In order to enable OTRR trains to meet the necessary transit time requirements, the OTRR has upgraded the highway crossing protection at two locations in Sidney, MT. These locations are situated on lines other than the newly constructed lines of the OTRR, and, therefore, crossing protection costs should be excluded as a barrier to entry. However, since the OTRR has determined that upgraded crossing protection is necessary at these locations, i.e., the OTRR is the cause for the upgrade, Otter Tail has included the entire cost for these two crossing protection devices in the OTRR's investment base.

ii. Overpasses

On Opening, Otter Tail included $9.55 million for highway overpasses on the OTRR. Based on prior STB decisions,[512] Otter Tail included costs for only those overpasses located on the OTRR line segments between Donkey Creek and Converse Yard (on the Orin Line) and the five coal mine branches where the highways pre-dated the railroad.

On Reply, BNSF included $14.61 million in investment for this item. As BNSF accepted Otter Tail's unit cost, the difference is caused by a difference in quantity. Between Donkey Creek and Converse Yard, both Otter Tail and BNSF identified sixteen overhead crossings. However, BNSF also included nine overpasses on the OTRR main lines west and north of Donkey Creek.

The OTRR is not responsible for any of the costs of the nine overpasses on the OTRR main lines west and north of Donkey Creek as they constitute a barrier to entry. BNSF claims that the OTRR would be responsible for not just a portion of the costs, such as 5 percent or 10 percent, but 100 percent of the construction costs. However, BNSF did not provide any support that it paid for any portion of these overpasses.[513] As discussed above, BNSF's reliance on the ICC Engineering Reports is misplaced as they do not provide any evidence as to what the railroad paid but merely that some crossings were in existence.[514] Furthermore, based on 23 CFR 646.210, in the case of an overhead crossing, the railroad is deemed to not receive any benefit and is assigned no cost.[515] For

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512 See WPL at 99-100; PPL at 28-29; McCarty 2 S.T.B 460, 521 (1997).

513 BNSF Reply Errata electronic workpaper "III F 8 Crossings_Errata.xls", sheet "Overpass Bridges", lists these nine overpasses. This list simply identifies the nine bridges; but for six of them, the "owner" column is either blank or an entity other than the BNSF. Furthermore, this list provides no evidence that BNSF paid for any part of these overpasses, only that they currently exist.

514 Otter Tail continues to believe that the ICC Engineering Reports are an invaluable tool in the stand-alone process for quantities but not costs or the assignment of costs.

515 See Otter Tail Rebuttal Workpaper Vol. 2, p. 6386.

this reason, as well as the prior STB decisions cited earlier, Otter Tail has not included any costs for the nine highway overpasses on the OTRR main lines west and north of Donkey Creek.

Based on the above, Otter Tail continues to include the $9.55 million for highway overpasses that it included in its opening evidence.

9. Mobilization

On Opening, Otter Tail included $44.83 million for mobilization based on a 3.5% additive applied to construction costs. On Reply, BNSF included $90.94 million for this investment item. As BNSF accepted Otter Tail's 3.5% factor, the difference is due entirely to BNSF's overstated construction costs. On Rebuttal, Otter Tail has continued to use the 3.5% additive, resulting in mobilization investment of $48.55 million for the OTRR.

10. Engineering Costs

On Opening, Otter Tail included $176.26 million for engineering costs for the OTRR. Otter Tail developed its engineering costs using PPL.[516]

On Reply, BNSF included $470.55 million for engineering costs, over 2½ times Otter Tail's amount. As engineering costs are based, in part, on a percent additive, a portion of the difference is caused by BNSF's significantly overstated costs in other areas of construction. The remaining difference is caused by the parties' use of different percentages and different methodologies.

BNSF criticizes Otter Tail's use of PPL by stating that it is not based on any evidence of costs associated with the OTRR, that it is based on generalized cost percentages, and that Otter Tail's 8.5% additive is inadequate (particularly the 3.5% for construction management and inspection).

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[516] See Otter Tail Opening at III-F-46.

BNSF also criticizes Otter Tail for omitting costs for planning and feasibility studies. On Reply, BNSF states that it utilized relevant authoritative industry publications and developed other costs from the ground up and that its approach offers a better indication of the costs involved.

Otter Tail disagrees with all of BNSF's criticisms. Engineering costs have been an issue in virtually every STB maximum rate case. In using the engineering costs from PPL, Otter Tail was reflecting the fact that the PPL route overlaps the OTRR route to a significant degree. Comparable routes and projects, i.e., constructing a railroad, should have similar engineering costs; contrary to BNSF's contention, there is nothing about the OTRR that makes it significantly more complicated than the stand-alone railroad in PPL. Otter Tail could have conducted a massive study, such as BNSF did, but with the emphasis on simplifying stand-alone cases (and reducing the costs of such cases), Otter Tail relied on the most reliable and comparable information available. Furthermore, BNSF's massive study predictably produced inflated engineering costs that are largely unsupported and based on unfounded assumptions. On Rebuttal, Otter Tail could also develop similar assumptions to support its position but opted to benefit from current, relevant information.

a. Planning Studies

On Reply, BNSF included $17.15 million for various "planning studies" associated with planning, study and evaluation of the route location for the OTRR. BNSF calculated this amount by multiplying a 0.5% additive taken from R. S. Means ("Means") by the total cost of construction for the OTRR, excluding land.[517] BNSF is incorrect to add these costs as a separate item under the

[517] See BNSF Reply at III.F-257.

OTRR engineering costs because the costs for engineering planning studies are already included by Otter Tail in the amount shown below for basic engineering services.

Otter Tail and BNSF disagree about the type of engineering services that are included in "basic engineering services." In "A Guide for the Engagement of Engineering Services" revised edition, published by the American Society of Civil Engineers ("Manual 45") under the heading "Services for Construction Projects" the manual lists 6 standard phases of the construction project, including the Study and Report Phase; the Preliminary Design Phase; the Final Design Phase; the Bidding or Negotiating Phase; Construction Phase; and Operation Phase.[518] As shown in this manual, five (5) of the six (6) standard phases are factored into the estimates of basic engineering services used by Otter Tail. This authoritative guide clearly includes surveys in the Study and Report Phase which covers "determination of project scope and economic and technical evaluation of feasible alternatives." The STB's recent decisions agree with Otter Tail's position that basic engineering services include planning, surveys, and geotechnical studies.[519]

In addition, the workpapers provided by BNSF do not support its calculation of the total costs for "planning studies." The unit cost utilized by the BNSF in its calculation of an amount for "planning studies" is based upon a Means Handbook unit cost for an "Educational planning consultant."[520] The Means Handbook does not explain the nature of the services that would be provided by an "Educational planning consultant," nor does BNSF demonstrate that such a "consultant" could provide the services that the BNSF described as planning studies.

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518 See Otter Tail Rebuttal Workpaper Vol. 2, pp. 6388 to 6392.
519 See Duke-NS at 124; CP&L at 107-108; Duke-CSXT at 107.
520 See BNSF Reply Workpaper BNSF.RP.WP.III.F-1081.

Contrary to BNSF's assertion that these costs are "free" for the OTRR, these engineering services and their respective costs are already included by Otter Tail in the engineering costs for basic services. Because these costs are already included in the basic services calculated by Otter Tail, there is no need to artificially inflate the OTRR engineering costs by including them again.

b. Basic Services

On Opening, Otter Tail utilized the 5.0% additive from PPL to compute the design engineering costs for the OTRR. On Reply, BNSF utilized a 5.7% additive derived from the 1981 ASCE Manual 45 for projects of above average complexity.[521]

BNSF did not even mention, much less criticize, Otter Tail's 5.0% additive. This is not surprising given the fact that BNSF has sponsored a 5.0% additive for design engineering in the past two decisions by the STB involving the BNSF.[522]

BNSF's characterization of the OTRR as a project of above average complexity is wrong and unfounded. The curve cited by BNSF in Manual 45 shows an engineering fee for projects of above average complexity. That same Manual 45, however, includes railways as an example of a projects of "average complexity" while tunnels and bridges are of "above average complexity."[523] As tunnels and bridges represent only 8% of the total cost of construction for the OTRR, the remaining 92% of the construction costs would be classified under "average complexity." Therefore, it is proper to characterize the construction of the OTRR as a project of average complexity. The ASCE's 1981 Manual 45 also contains a separate cost curve for cost of basic services expressed as a percentage

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521 See BNSF Reply at III.F-257.
522 See PPL at 30-31and TMPA at 157.
523 See Otter Tail Rebuttal Workpaper Vol. 2, p. 6396.

of construction cost for projects of average complexity. For a construction project of average complexity with a net construction cost of $100 million, the average compensation for basic services costs is 4.61% of construction costs.[524]

This cost curve also highlights two additional points. First, the 4.61% is an average and not the lowest compensation for basic services. Since the OTRR would be a least cost construction project, the actual compensation for basic services could actually be lower than 4.61% of construction costs. Second, the chart demonstrates that, as the net construction costs increase, the mean compensation levels decrease. Since the OTRR would be a $2.5 billion construction project, the mean compensation level could be even lower than 4.61%. Therefore, the 5% utilized by Otter Tail is a conservative figure.[525]

On Rebuttal, Otter Tail continues to apply 5.0% for design engineering costs.

c. Surveys and Geotechnical Subsurface Investigations

On Opening, Otter Tail included $9,036 per route mile or $11.60 million for preliminary engineering including surveys and geotechnical subsurface investigations. On Reply, BNSF included $29.14 million for surveys and geotechnical subsurface investigations or $22,679 per route mile.[526]

BNSF objects to Otter Tail's use of the per mile cost from PPL on the basis that it is not based on any studies or analyses of the OTRR. BNSF's position is unfounded. Otter Tail's engineering expert reviewed these charges and confirmed that the tasks normally included in this cost item

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524 See Otter Tail Rebuttal Workpaper Vol. 2, p. 6395.

525 The STB accepted the characterization of railroad projects as being of average complexity in Duke-NS. The STB accepted this characterization even though the construction cost for bridges and tunnels for the Duke-NS stand-alone railroad was almost 33% of the total construction costs, four times the percentage in this proceeding. See Duke-NS at 124-125.

526 ($6,186,483 + $22,956,026) ÷1,285 route miles = 22,679 per route mile. See BNSF Reply Errata electronic workpaper "III F 10 Engineering_Errata.xls."

involve the review of USGS maps, the use of computer-aided design, route surveys, aerial mapping and geotechnical investigation. The costs for these items, on a per-mile basis, would be very similar no matter where the proposed rail line was to be located, but would especially hold true for similarly-situated systems such as the OTRR and the stand-alone railroad presented in PPL.[527] BNSF's contention that the roadbed for the eastern portion of the OTRR as "low-lying" and "swampy" is based upon anecdotal evidence and is not based on any scientific evidence that has been presented in this proceeding.[528]

Furthermore, BNSF's costs for surveys are simply estimated costs based on Means Handbook unit costs and arbitrarily inflated acreage estimates for the OTRR right-of-way and easements. The methodology utilized by BNSF to calculate costs for geotechnical subsurface investigations results in costs that are even more arbitrary. BNSF's geotechnical costs are simply an unjustified amalgam of unit costs and additives for borings taken from the Means Handbook that are multiplied by estimates of the total linear feet of borings and total number of tests required for the OTRR.

The STB has previously rejected attempts to include additives to survey costs in engineering costs. In the most recent cases, the STB has concluded that additional costs for location and design surveys are unnecessary because they are already included in the basic engineering estimate.[529]

The costs for surveys and geotechnical subsurface investigations are already included in Otter Tail's construction costs. Otter Tail's use of the PPL cost of $8,464 per route mile for preliminary

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527 The OTRR follows the PPL stand-alone railroad route from Converse Yard, WY to Jones Junction, MT.

528 Otter Tail wonders why BNSF insists on adding 31 gallons of water per cubic yard to this soil for compaction if it is so "swampy." Compare BNSF Reply III.F-120 with III.F-259.

529 See Duke-NS at 125; CP&L at 108; Duke-CSXT at 107.

engineering ($9,036 at 1Q02 levels) is clearly applicable to the OTRR, and Otter Tail continues to use this cost on Rebuttal.[530]

d. Construction Management

On Opening, Otter Tail included 3.5% for construction management and inspection based on PPL. BNSF includes costs of $147.45 million based on the use of a 4.3% figure for construction management.[531] BNSF's calculation of construction management cost is based on an inflated additive and inconsistent with BNSF's own previous testimony before the STB.

BNSF bases its 4.3% additive for construction management on the results of a survey conducted by the Construction Management Association of America ("CMAA") in 2000. BNSF misinterprets the results of the CMAA survey. A closer review of the CMAA survey reveals that it actually supports the use of a much lower additive for construction management on the OTRR than is proposed by BNSF.

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530 Otter Tail notes a significant difference between the costs presented by BNSF in TMPA and the costs presented in this proceeding. In TMPA, BNSF proposed a cost of $14.3 million for "mapping and subsurface" for 1,629.3 route miles. (See TMPA at 157 and 67.) This equates to a cost of $8,777 per route mile, comparable to that included by Otter Tail and sixty-one percent (61%) less than BNSF's cost in this proceeding.

531 BNSF "validates" its 4.3% estimate by undertaking two additional analyses. One analysis is based on construction management percentages from Means that were utilized by the STB in FMC. The other analysis is based upon a bottom-up approach utilizing BNSF assumptions and estimates of the required staffing levels and unit costs taken from the Means Handbook and the Professional Service Management Journal. Not surprisingly, each of these analyses produce aggregate costs that are larger than aggregate costs based on 4.3%. Each of these "validating" analyses are incorrect.

Contrary to its unsupported claim, BNSF has not provided compelling evidence that the 3.25% additive (based on Means) used by the STB in FMC is understated. While the Means data used in FMC is for a $5 million project, it is not proper to conclude that a larger project (as measured by cost) would result in a higher percentage figure. To the contrary, the Means data would lead one to draw the opposite conclusion. According to Means, the fees for a $1 million project range from 4.5% to 7.5% and the fees for a $5 million project range from 2.5% to 4.0%. Based on this, the fees for a $2.5 billion project like the OTRR would be much lower than 2.5%. (See BNSF Reply Workpaper RP.WP.III.F-1112)

BNSF's "detailed" bottom-up estimate of the effort and costs required to provide construction management services is based on BNSF's unsupported and arbitrary assumptions.

According to the excerpts of the CMAA survey provided by BNSF in its Reply workpapers, the 4.3% additive is based on the median percentage for eight (8) different unidentified transportation projects included in the CMAA survey.[532] Consistent with SAC principles, the costs for construction management on the OTRR should not reflect the average costs for construction management but instead should reflect the lowest cost for this service. Based on the results of the CMAA survey, the OTRR (as a least cost, most efficient railroad) could expect to pay approximately 2.7% for construction management.[533] This amount is considerably below the amount suggested by both BNSF and Otter Tail in this proceeding.

In addition, a thorough review of the CMAA cost survey reveals that the 4.3% average construction management fee includes costs for services provided in the following categories: predesign phase, design and bid phase, construction phase and additional services. According to CMAA, only 82.2% of the construction management costs apply to the construction phase as defined by BNSF.[534] Therefore, in order to avoid a double count of OTRR construction costs included by BNSF in basic engineering services fee, the BNSF's 4.3% figure must be multiplied by 82.2% resulting in a construction management fee of 3.5%. Thus, the CMAA survey further supports the additive proposed by Otter Tail on Opening.

On Rebuttal, Otter Tail continues to use a 3.5% additive, accepted by the STB in PPL,[535] for construction management and inspection costs.

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532 See BNSF Reply Workpaper BNSF.RP.WP.III.F-1114.
533 Id.
534 Id.
535 See PPL at 31.

e. Construction Stakeout

On Reply, BNSF included $35.36 million for construction stakeout surveys.[536] Otter Tail did not include a separate amount for construction stakeout because the costs for this task are already included in the basic engineering service costs discussed above.

BNSF has not provided any evidence in this proceeding that supports its contention that the costs for the construction stakeout survey is not included in the basic engineering costs computed by Otter Tail. BNSF's calculation of this amount is also based on unsupported assumptions concerning unit costs and estimates of the total number of survey crew-days. The inclusion of this item as a separate cost category is another example of unnecessary "special" services that are already included in the basic services cost.

On Rebuttal, Otter Tail does not include additional costs for this service because they are already included in the OTRR's basic engineering costs.

f. Material Testing During Construction

On Reply, BNSF included $46.00 million for technicians responsible for verifying, testing, and monitoring of the quality of the material used in the OTRR.[537] BNSF's calculation of this amount is based on unsupported assumptions concerning total number of days required for material testing and a per-staff cost for field crews from Means.

On Opening, Otter Tail did not include a separate amount for material testing during construction because the costs for this task are already included in the construction management and

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536 See BNSF Reply Errata electronic workpaper "III F 10 Engineering_Errata.xls."
537 Id.

inspection costs discussed above. This is a basic, primary function assigned to construction management. Otter Tail maintains that position in Rebuttal.

g. Total Engineering Costs

Based on the above discussion, Otter Tail continues to use the additive of 8.5% and the cost of $9,036 per route mile to calculate the engineering costs for the OTRR. On Rebuttal, Otter Tail has included $187.97 million for engineering for the OTRR.

11. Contingencies

On Opening, Otter Tail included investment costs of $215.82 million for contingencies based on a ten percent (10%) contingency factor. On Reply, BNSF included investment costs of $399.05 million for this investment item. As BNSF accepted Otter Tail's ten percent (10%) factor, the entire $183.23 million difference in this investment item is due entirely to BNSF's overstated construction costs.

While the parties agree on the contingency factor to use in this proceeding, BNSF claims on Reply that a more reasonable estimate based on the OTRR stage of planning is twenty percent (20%) and attempts to persuade the STB that a ten percent (10%) contingency factor is "extremely conservative."[538] Otter Tail disagrees with this characterization and submits that the ten percent (10%) contingency factor considerably overstates the aggregate amount required for unforeseen construction costs on the OTRR.

Although the contingency factor percentage is not an issue in this proceeding, as both parties used ten percent, the STB must consider the true purpose of the aggregate monies included in the

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538 See BNSF Reply at III.F-268 to III.F-269.

OTRR contingency fund. In a recent decision, the STB stated that "a contingency account provides funds to cover unforeseen costs that might arise during construction."[539] Implicit in the STB's description is the understanding that the contingency monies are intended to cover any unforseen costs that might arise during construction and that are not already included in the OTRR investment. Stated differently, if monies for unforeseen events are already included in the investment costs, then the use of a ten percent (10%) contingency factor results in an overstatement of the amount of funds needed in the OTRR contingency account. If monies for unforseen events are not already included in the investment costs, then the use of a ten percent (10%) contingency factor is acceptable.

As Otter Tail has explained in many sections of this Rebuttal Section III-F, the OTRR investment cost developed by BNSF on Reply is based on overstated quantities, inflated unit costs, unnecessary or "gold-plated" specifications and predicated on worst-case scenarios. For example, on Reply, BNSF included in its OTRR investment calculations the costs for various unforseen, unpredictable and extreme conditions based solely on unsupported estimates, including things such as extreme soil conditions/texture (e.g., requiring higher unit costs for earthwork based on the most adverse earthwork conditions, upgraded equipment to handle extreme soils, additional geotextiles and foundation conditioning) and bad weather conditions (e.g., costs for snow removal, construction lighting, additional earthwork equipment and additional labor for ballast).[540] In FMC, the STB correctly noted that "a contingency fund would be needed only to fund unforeseen costs (such as increased costs due to bad weather conditions) that might occur during construction."[541] To include

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539 See Duke-NS at 126.

540 These types of costs are based on speculation, and are commonly referred to as "buried contingencies" because they are buried in the construction costs.

541 See FMC at 147.

unsupported, estimated costs, for potential situations that the OTRR may encounter, in the OTRR construction costs and to then apply a contingency factor on top of those costs is inappropriate and results in greatly inflated investment costs.

The STB must consider the extent to which the construction costs chosen for the OTRR investment already include these "buried contingencies." The investment cost developed by Otter Tail does not include any "buried contingencies" because they are based on the most likely construction conditions for the OTRR and are indicative of least-cost, productive construction techniques. As a result, the application of the ten percent (10%) contingency factor to Otter Tail costs is appropriate. The application of the ten percent (10%) contingency factor to BNSF costs, however, is inappropriate because BNSF's investment costs include buried contingencies. This can be remedied, in part, by excluding all of BNSF's unsupported and estimated costs for unknown conditions, e.g., foundation conditioning, additional geotextiles, additional earthwork equipment, snow removal, construction lighting and additional ballast labor.[542]

On Rebuttal, Otter Tail continues to use the 10% additive, resulting in contingency investment of $231.14 million for the OTRR.

12. Other

a. Construction Schedule

On Opening, Otter Tail used a time frame of 30-months for the construction of the OTRR and thoroughly explained the process.[543]

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[542] As noted throughout this Section III-F, not only has BNSF included many cost items based solely on speculation but BNSF has inflated the OTRR's construction costs at every opportunity. These overstated costs also add to BNSF's over-inflated contingency amount.

[543] See Otter Tail Opening at III-F-47 to III-F-51.

On Reply, BNSF accepts the 30-month time frame proposed by Otter Tail.[544] While BNSF accepts the time frame proposed by Otter Tail, it argues that a 30-month time frame requires a number of changes to the OTRR construction plan. These changes include adjustments to the sourcing for OTRR track materials, changed routing for certain track materials, the addition of a staging area at Sanborn, ND, and the addition of material and equipment to mitigate the affects of winter weather. Otter Tail has addressed each of BNSF's modifications previously and does not repeat these discussions here.[545]

On Rebuttal, Otter Tail maintains that its proposal for the OTRR's road property construction is based on solid engineering and an adequate construction schedule with sufficient time built-in for unforseen construction events. Otter Tail continues to utilize a 30-month time frame for construction of the OTRR.

b. Otter Tail Alternative Case

As discussed in Section III-A, infra, on Supplemental Opening Otter Tail presented an Alternative Case. The primary difference between Otter Tail's Base Case and its Alternative Case is that the Alternative Case includes additional short-haul coal traffic on the OTRR rail lines between Donkey Creek, WY and Converse Yard, WY. As discussed in Otter Tail's Supplemental Opening, this increase in traffic necessitated changing an 8-mile section of single track to double track, the addition of two set-out tracks and the addition of four turnouts.[546] These changes resulted in an increase in quantities and costs (from Otter Tail's Base Case) for the following investment items:

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544 See BNSF Reply at III.F-269.

545 See Section III-F-2b(iv)(f) for a discussion of the impact of winter weather; See Section III-F-3g(iii) regarding sourcing of materials, routing of materials and the addition of Sanborn, ND as a staging area.

546 See Otter Tail Supplemental Opening at III-F-1.

earthwork quantities, culverts, water for compaction, land for waste quantities, ballast, subballast, cross ties, rail, other track material (spikes, tie plates and anchors), turnouts (including electric locks, switch stands, and switch heaters), bridges, bridge walkways, CTC system, FED's, signs, roadway crossings, mobilization, contingencies and engineering.[547]

All of the support contained herein for Otter Tail's Base Case, including the modifications on Rebuttal, is applicable to Otter Tail's Alternative Case. Table III-F-13 below details the investment required for Otter Tail's Alternative Case.[548]

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547 See Otter Tail Supplemental Opening at III-F-1 to III-F-8.

548 See Exhibit III-F-26 and Otter Tail electronic workpaper "OTRR CONSTRUCTION Rebuttal.xls" located in the III-F-3 subdirectory of the "Alternative" directory included as part of Otter Tail's rebuttal electronic workpapers.

Table III-F-13
OTRR Estimated Road Property Investment - Alternative Case
($ In Millions)

Item (1)	Otter Tail Rebuttal (4)
1. Land	$46.58
2. Roadbed Preparation	635.49
3. Culverts	27.06
4. Track	
a. Geotextiles	$0.35
b. Ballast	64.42
c. Subballast	38.96
d. Cross ties	160.20
e. Rail (incl. welds and comp joints)	194.73
f. Turnouts (incl. all components)	44.76
g. Rail lubricators	4.21
h. Tie plates, clips, spikes and anchors	70.53
i. Derails and wheel stops	0.07
j. Material transportation	112.81
k. Track construction labor	277.97
5. Tunnels	$0.00
6. Bridges	
a. Bridges	$164.04
b. Walkways on bridges	4.67
7. Signal, Communications and Other Equipment	
a. Signals - CTC (incl. electric locks)	$202.86
b. Hot bearing and dragging equipment detectors	2.22
c. Communications system	12.33
8. Building and Facilities	
a. Fueling stations	$13.50
b. Locomotive maintenance	8.98
c. Car repair facilities	0.00
d. Station and office buildings	4.74
e. Roadway buildings	4.29
9. Public Improvements	
a. Fences	$18.15
b. Roadway signs	0.43
c. Highway crossings - material & protection	3.92
d. Highway crossing overpasses	9.55
10. Subtotal	$2,127.82
11. Mobilization	$48.66
12. Engineering	188.51
13. Contingency	231.84
14. Grand Total	$2,596.83

As shown in Table III-F-13 above, total investment for Otter Tail's Alternative Case equals $2,596.8 million, or an increase of $7.7 million over Otter Tail's Base Case.

III-G
DISCOUNTED CASH FLOW ANALYSIS

III-G APPLICATION OF THE DISCOUNTED CASH FLOW MODEL TO THE OTRR

On Opening, Otter Tail explained that it had patterned its DCF model after the one used by the Board in FMC and WPL in that it recovers investment costs spread evenly over time. On Reply, BNSF takes issue with various elements of Otter Tail's DCF analysis.[1] On Rebuttal, Otter Tail responds to BNSF's various criticisms of its DCF analysis and concludes that the majority of BNSF's criticisms are not valid. Otter Tail adjusts its DCF analysis in response to BNSF's criticisms and adjusts its DCF analysis to reflect actual indexes and changes in interest rates.

1. Annual Cost of Capital

On Opening, Otter Tail calculated a 1999-2001 average composite cost of capital of 10.45% based on the Board's cost of capital decisions.

In Reply, BNSF includes significant investment fees that the OTRR would be charged for floating equity in the form of a financing fee. The effect of including the 4.0% financing fee on equity is that BNSF added $98.8 million to the OTRR's start-up investment cost (i.e., BNSF applies 4.0% to the equity portion (54.18%) of the total construction cost of $4.5 billion). BNSF correctly points out that the Board in TMPA rejected inclusion of such fees. In TMPA, the Board stated on page 162 that BNSF did not support its position for including the fees. Since then, the Board also rejected these fees in Duke/NS, CPL, and Duke/CSXT.

In the current proceeding, BNSF claims to offer additional support. The additional support is irrelevant to the matter at hand because the cost of capital that is calculated by the Board already includes floatation costs which BNSF is double counting. On page 38 of Duke/NS, the Board ruled

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1 BNSF's March 22, 2004 Supplemental Reply evidence stated there is no change to Section III G from its October 8, 2003 Reply evidence.

that inclusion of flotation costs by the railroad was improper for that very reason. Otter Tail does not include costs for floating equity in its Rebuttal DCF analysis.

In Rebuttal, Otter Tail updated the cost of equity in Table A of the DCF model to include the 2003 railroad industry cost of equity.[2] For each year after 2003, the annual cost of equity is based on the railroad industry average equity cost of capital for the 1999 through 2003 time period.

Otter Tail also assumed that the OTRR will refinance the debt portion of its capital structure in 1Q03. The effects of this refinancing is that the OTRR will payoff its debt at an interest rate of 7.4% and will refinance its debt at a 4.99% interest rate.

In WTU, the Board rejected the defendant's efforts to burden the SARR with a high single year interest rate to predict future railroad debt costs. The Board instead adopted the use of a three year weighted average and noted that the SARR would have the ability to refinance its debt so as to take advantage of falling interest rates in the future:

> There is no disagreement that this rate [average rate of debt over the construction period] represents the cost of debt that WTRR would incur when it assembles the railroad. Because this debt would be incurred during the construction period, and because debt financing establishes a set interest rate over a set time period, WTRR would not have to pay prevailing debt rates in periods following construction to prevent the suppliers of capital from withdrawing their investment. Indeed, not only could WTRR continue to pay off its debt at the contracted rate, it could refinance and lower its debt costs if the opportunity provided itself in the future.[3]

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2 The 2003 annual cost of equity is taken from the Association of American Railroads filing in Ex Parte 558 (Sub-No. 7), filed March 29, 2004. See Rebuttal workpaper Vol. 2, pp. 6397 to 6416.

3 1 S.T.B. at 712. (emphasis added.)

The Board also provided additional guidance in McCarty Farms concerning debt financing. Specifically, the Board opined that the SARR would be able to choose a method of financing that would be beneficial to a least-cost entity. Specifically, the Board stated:

> The rail industry cost of debt reached 14% in 1982. As an efficient, least-cost replacement for the incumbent, the FRR would be free to choose a method of financing its debt to minimize that cost.[4]

2. Inflation Indices

Otter Tail and BNSF agree on the need to adjust for the effects of inflation on capital costs, operating expenses, and land values, but disagree as to the proper mechanics for adjusting capital costs and operating expenses.

a. Operating Expenses

On Opening, Otter Tail adjusted operating expenses for inflation by using the RCAF-A that DRI-WEFA projected in its June 2001 forecast.

BNSF contends that the RCAF-U should be used instead of the RCAF-A because the STB relied on it in the past.[5] BNSF also claims that use of the RCAF-U is appropriate because the OTRR would not experience the productivity improvements of Class I railroads.

In WPL, the STB stated that a single carrier, moving one commodity, would realize future productivity. WPL at 106 Although the OTRR moves more than one commodity, the language from

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4 2 S.T.B. at 523, footnote 126. (emphasis added.)
5 See BNSF Reply at III.G-1 to III.G-3.

gains such as upgrades in computers and software.[10] Operating cost per locomotive unit mile for locomotives will also change slower than general inflation as new units are brought into service to meet demand for transportation as the OTRR's traffic volumes increase over the 20-year DCF period.[11] Locomotives in the future are expected to be more efficient, i.e., produce more horsepower for the same amounts of fuel, and therefore be more productive, than their existing counterparts.[12]

Improvements in roadway maintenance practices and track materials will also help increase productivity in the future. Increased track quality has a direct impact on the cost of train operations by reducing train resistance, which increases train efficiency and lowers unit transport costs.[13] Continued improvements in track materials will allow for decreased costs and/or increased output. As an optimally efficient carrier, the OTRR can be expected to take advantage of such improvements which will enable it to remain a least cost, most efficient hypothetical stand-alone railroad.[14]

Listed below are additional sources of railroad productivity gains that should impact the future stand-alone operating expenses and investment costs for the OTRR:

1. A July 2003 AAR Report entitled "Railroads: Building a Cleaner Environment."[15]

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10 On page III-D-55 of its Opening Narrative, Otter Tail states that it included funds in its annual operating expenses for annual software upgrades. These upgrades will allow for greater computer productivity and lower operating expenses. Additionally, Otter Tail Rebuttal electronic workpaper "Otter Tail_OPR_EXP_REB.123," line 319, shows that the OTRR will turn over its IT hardware every six (6) years, contrary toBNSF's assertions that most OTRR assets will not be replaced during the 20 year DCF period.

11 See Otter Tail Rebuttal electronic file "Exhibit-III-H-3.123," worksheet "Operating SAC," Line 17.

12 See Otter Tail Rebuttal Workpaper Vol. 3, p. 6470.

13 See Otter Tail Opening Workpaper Vol. III, p. 3532.

14 The STB's determination of railroad operating expenses in previous coal rate cases demonstrates that there is indeed productivity in unit-coal train operations. Compare WTU, (where the STB determined that the average operating cost per revenue ton-mile equaled 4.73 mills per ton-mile in 1995 dollars for a SARR), with WPL (4.35 mills per ton mile in 2000 dollars), and TMPA (approximately 3.56 mills in 2001 dollars).

15 See Otter Tail Rebuttal Workpaper Vol. 3, pp. 6478 to 6480.

2. A September 19, 2003 Federal Railroad Administration ("FRA") Report entitled "Evaluation of a Top-of-Rail Lubrication System."[16]

3. Statements by railroad industry officials and experts, including both the May 9, 2001 and the September 10, 2003 speeches by BNSF's Matthew K. Rose.[17]

4. The May 9, 2001 and the September 10, 2003 speeches by BNSF's Matthew K. Rose point toward improved productivity of capitalized assets, and therefore lower future investment costs for the stand-alone railroads.

5. Productivity will be achieved through increases in locomotive fuel efficiency as demonstrated through the following:

   a. Research being conducted by the DOE's Argonne National Laboratory, in conjunction with EMD, has identified performance enhancing improvements that will help EMD build more reliable and more efficient locomotives in the future.[18]

   b. Top of rail lubrication systems being developed and tested by the AAR's Transportation Technology Center ("TTC") present the opportunity to significantly lower fuel consumption.[16]

   c. In a recent field test, significant average fuel savings were achieved on CSX unit coal trains using this type of lubrication system.[19]

   d. According to the AAR, new locomotives with advanced microprocessors and other information technology features will allow for dynamic monitoring of locomotive functions leading to fuel efficiency gains.[16]

   e. The AAR also cites the use of new electronic braking systems on railcars that will stop trains more surely and swiftly than existing pneumatic systems, while also improving fuel efficiency.[16]

6. According to a September, 2003 Railway Age article, at least five (5) locomotive and locomotive parts suppliers are testing locomotive management systems that will dynamically track locomotive performance and alert the user to pending maintenance problems leading to decreases in unplanned maintenance.[20]

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16 See Otter Tail Rebuttal Workpaper Vol. 3, pp. 6473 to 6477.
17 See Otter Tail Rebuttal Workpaper Vol. 3, pp. 6481 to 6489.
18 See Otter Tail Rebuttal Workpaper Vol. 3, pp. 6425 to 6452.
19 See Otter Tail Rebuttal Workpaper Vol. 3, p 6473.
20 See Otter Tail Rebuttal Workpaper Vol. 3, pp. 6453 to 6457.

7. Productivity will be achieved through increases in coal car efficiency as demonstrated by the following:

   a. Research being conducted by the AAR's TTC is leading towards improved suspension trucks for bulk commodity cars. These improved suspensions produce less wheel wear, and thus less railcar maintenance costs.[16]

   b. The AAR's TTC has also developed, and patented, new metal alloys for railcar wheels that minimize all defects and increase wheel life.[16]

   c. An EIA report cites the case of railcar manufacturers developing composite coal cars that have lower tares than aluminum coal cars with the same, or better, overall strength.[21]

   d. According to railroad industry observers cited in a September, 2003 Railway Age article, the use of 315,000 GWR railcars is inevitable leading to growth in coal car productivity. Some suggest that their use will commence within five (5) years.[22]

8. Productivity will be achieved through increases in system efficiency as demonstrated by the following:

   a. The AAR's TTC is working on and testing Positive Train Control systems that will increase train speeds and system capacities by updating train locations faster than conventional signaling and control systems.[16]

   b. The AAR also cites the use of GPS tracking, allowing trains to run more frequently over a particular route, increasing efficiency and system performance.[16]

9. Productivity will be achieved through increases in operating maintenance of way efficiency as demonstrated by the following:

   a. The AAR is developing Rail Profile Maintenance Software that characterizes interactions between railcars and rail leading to identification of high contact stress areas for preventative maintenance.

   b. The AAR is also developing performance based track geometry inspection procedures that will lead to real-time inspection methods and improved priority of maintenance activities.

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21 See Otter Tail Rebuttal electronic workpaper "EIA NOMINAL RATE INDEX.PDF"
22 See Otter Tail Rebuttal Workpaper Vol. 3, p. 6458.

c. New rail flaw and broken rail inspection systems are being developed by the AAR that will streamline inspections and more quickly pinpoint defects.

10. Extensive research has been undertaken by the AAR to find ways to reduce the stress, and increase the operating life of track and roadbed infrastructure. Techniques and products being developed to reach this goal include:

a. Improved railcar suspension trucks that reduce the forces imparted to tracks and rail beds, slowing degradation.[16]

b. Long travel constant contact side bearings that reduce vehicle dynamics which lead to track degradation.[16]

c. Wayside detector systems that identify poorly performing rolling equipment that could alter track structure and lead to increased wear.[16]

d. Rail profile maintenance software that identifies high contact stress areas for increased scrutiny and additional preventative maintenance.[16]

e. Top of rail lubricators and friction control systems that reduce curve forces up to 20 percent.[16]

11. Improvements in the Thermite welds used in continuously welded track being tested by the AAR can lead to longer rail life.[16]

12. Synthetic tie plugging materials being tested by the AAR and FRA are being developed that will provide increased strength and longer tie life.[16]

13. Improvements in pre- and supplemental preservative treatments of wooden ties being tested by Mississippi State University have been shown to be effective in increasing the ties' service lives.[23]

14. Improved bridge joints currently being tested by the AAR and TTC can reduce dynamic loadings on the bridge and decrease degradation in bridge components.[16]

15. Improvements in information and communication technologies will allow for less reliance on expensive wire-based communication systems, and greater use of mobile communication and signaling technology.[16]

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[23] See Otter Tail Rebuttal Workpaper Vol. 3, pp. 6459 to 6468.

16. Future productivity will stem from improvements that will impact all rail operations, including unit coal train operations.[24]

In its WTU decision, the STB estimated that the stand-alone railroad's operating costs approximated 4.73 mills per ton-mile in 1995 dollars. Inflating these operating costs by the change in the RCAF-U between 1995 and 2001 provides operating expenses of 5.22 mills per ton-mile in 2001 dollars. In contrast, the STB in its TMPA decision found that the stand-alone operating costs were approximately 3.56 mills per ton-mile in 2001 dollars, or 32 percent lower than the inflated WTU operating costs using the RCAF-U. A primary driver in the decline in operating costs between these two decisions is the increase in operating productivity railroads enjoyed between 1995 and 2001. Between 1995 and 2001, the RCAF-A declined on average by 3.9 percent per year, only slightly less than the annual average decline of 6.1 percent between the WTU and TMPA operating costs.[25]

In recent decisions, the Board has acknowledged that the SARR in fact will realize a productivity gains, but nevertheless concluded that those gains would be less than for existing railroads:

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24 See Otter Tail Rebuttal Workpaper Vol. 3, pp. 6490 to 6492.
25 See Otter Tail Rebuttal electronic workpaper "CHANGES IN OPERATING COSTS.XLS"

> While it is difficult to imagine that there would not be some areas in which the [SARR] might realize productivity improvements over the course of the SAC analysis period, the potential impact of such improvements is far less than it would be for existing railroads, which make changes incrementally as older-technology assets wear out or become obsolete. Thus, it would not be appropriate to use the RCAF-A here. While the use of RCAF-U may somewhat overstate the [SARR's] costs over the 20-year period, such overstatement would appear to be far less than the understatement that would result from using the RCAF-A.[26]

In this case, however, Otter Tail has submitted evidence of substantial productivity gains that would occur on the OTRR over the 20-year DCF period.

In addition, the OTRR will experience substantial gains that will outpace any similar gains made by existing railroads. Unlike existing railroads, at the outset the OTRR is built to handle its peak capacity which occurs in 20 years. Total traffic on the OTRR will increase by more than 21% over this time period.[27] Even more revealing, however, is the increase in coal traffic of more than 25.[28] This is because Otter Tail very conservatively has not projected any increases in non-coal traffic.

Based on Otter Tail's evidence, the potential productivity improvements of the OTRR will be much closer to that of existing railroads using the RCAF-A rather than the RCAF-U. Even if the Board were to conclude that use of the RCAF-A may understate the OTRR's costs over the 20-year period, such understatement would be far less than any overstatement that would result from using the RCAF-U. Therefore, in accordance with precedent in Duke/NS, CPL, and Duke/CSXT, the Board should apply the RCAF-A in this proceeding.

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26 Duke/CSXT at 30. See also Duke/NS at 36-37 and CPL at 27-28.

27 See Otter Tail Rebuttal electronic workpaper "OTTER TAIL RAILROAD COAL TRAFFIC FORECAST REBUTTAL.XLS", level "2002-2021 TONNAGE", cell "CT16."

28 See Otter Tail Rebuttal electronic workpaper "OTTER TAIL RAILROAD COAL TRAFFIC FORECAST REBUTTAL.XLS", level "2002-2021 TONNAGE", cell "CU11."

On Rebuttal, Otter Tail has used actual RCAF-A index values for time periods that actual data has been published, and it has also adopted the June 2003 DRI-WEFA forecast for the RCAF-A for adjusting future OTRR operating expenses.

The Board has recognized that a SARR will enjoy productivity gains over the 20 year DCF model.[29] However, the Board has been reluctant to adjust the operating expenses of SARRs over the 20-year DCF period using the RCAF-A absent a showing of specific productivity improvements.[30] In this case, Otter Tail has demonstrated that the RCAF-A is clearly appropriate to adjust the operating expenses of the OTRR over the DCF period because the OTRR will enjoy significant productivity gains. The appropriateness of using the RCAF-A in this case can be tested by applying the productivity component of the EIA coal transportation rate forecasts.

The EIA, as part of its AEO, forecasts energy supply, demand and prices extending 25 years into the future. Forecasted coal transportation rates are a key factor in the EIA forecasts, and are determined annually by the EIA using a statistical regression model to relate changes in historic coal transportation rates to changes in historic railroad wages, fuel prices, and equipment rents.[31] EIA also includes in the regression model a time series trend factor reflecting the historic trend in coal transportation productivity. For its 2001 to 2003 AEO forecasts, the EIA used a historic productivity factor of 2.15 percent.[32] In its 2004 AEO, the EIA updated the coefficients used in its regression equation and used a historic productivity factor of 2.08 percent.

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29 WPL at 106; CP&L at 27; Duke/CSX at 30

30 See TMPA at 161.

31 See Watkins, J., "Forecasting *Annual Energy Outlook* Coal Transportation Rates," Issues in Midterm Analysis and Forecasting - 1997, Energy Information Administration. See Otter Tail Rebuttal Workpaper Vol. 3. p. 6493 to 6500.

32 Historic productivity factor information is publicly available from EIA.

Using the coefficients derived from its regression model, EIA uses forecasts of railroad wages, fuel prices and equipment rents, and expectations of future coal transportation productivity to develop a forecast of future coal transportation prices. The expectation of future coal transportation productivity used in the forecast is derived by utilizing the historic productivity factor and adjusting it by the standard error of the historic productivity factor multiplied by an EIA-defined productivity parameter ("k-parameter"). For the 2002 AEO, the EIA determined that the standard error of its 2.15 percent historic productivity factor equaled 0.35 percent, and used a k-parameter of negative two (-2), leading to an estimate of future coal transportation productivity of 1.46 percent.[33] For its 2003 AEO, the EIA used the same historic productivity factor and standard error, but utilized a k-parameter of negative three (-3), indicating a slowing of expected future productivity to 1.11 percent.[34] For its 2004 AEO, the EIA used its updated historic productivity factor of 2.08 percent and an updated standard error of 0.33 percent, but also reverted to a k-parameter of negative two (-2). This provides a forecasted rate of future coal transportation productivity of 1.42 percent per year.[35]

Using these EIA forecasts of expected coal transportation productivity, a rail cost adjustment factor ("RCAF") adjusted specifically for future coal transportation productivity can be developed. Columns (2), (3) and (4) of Exhibit III-G-1, Pages 2 and 3, show the historic and DRI-WEFA's forecast of the RCAF-U, the STB's PAF, and RCAF-A, respectively. The RCAF-A is developed by dividing the RCAF-U (Column (2)) by the PAF (Column (3)). A RCAF adjusted for the EIA's expectations of future coal transportation productivity ("EIA RCAF-A") can be created by substituting the PAF for a productivity adjustment factor incorporating EIA expectations of future

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33 See Exhibit III-G-1, p. 1, Line 1.
34 See Exhibit III-G-1, p. 1, Line 2.
35 See Exhibit III-G-1, p. 1, Lines 3 to 20.

coal transportation productivity ("EIA PAF"). Column (5) shows the fourth root of the EIA's annual forecasted change in coal transportation productivity developed on Page 1 of Exhibit III-G-1. Column (6) converts the quarterly forecasted change in Column (5) into an EIA PAF. Each quarter's EIA PAF is then applied to historic or DRI-WEFA forecasted RCAF-U values to develop the EIA RCAF-A shown in Column (7).

An inflation index for the OTRR was calculated to take into account the fact that the OTRR moves multiple commodities, although as noted above, 88% of the total tons moved on the OTRR are coal tons. The inflation index for the OTRR was derived by taking the average of the productivity component from the EIA coal transportation rate forecast weighted on the OTRR's coal ton-miles and the DRI-WEFA RCAFA weighted on the OTRR's non coal ton-miles. Exhibit III-G-2 is a graph that compares the cumulative change in the EIA RCAF-A to the cumulative change in the Weighted Average DRI-WEFA RCAF-A forecast, the cumulative changes in the DRI-WEFA forecasts of the RCAF-A and RCAF-U, and the cumulative change in the OTRR's average rate per ton over the DCF period, based on Otter Tail's Rebuttal evidence.

b. Road Property Assets Other than Land

On Opening, Otter Tail adjusted non-land road property assets by the DRI-WEFA[36] forecast for rail labor and rail materials and supplies following the FMC procedures. In Reply, BNSF advocates (BNSF Reply at III.G-3) use of historical rates of railroad inflation. On Rebuttal, Otter Tail disputes BNSF's use of historical inflation data, but adopts BNSF's updated DRI-WEFA June 2003 forecast. Otter Tail has also used actual RCR index values for the time periods that actual data has been

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[36] As BNSF noted in footnote 2 on page III.G-2, DRI-WEFA changed its name to Global Insight. For purposes of continuity, the name DRI-WEFA will continue to be used in Section III-G of Otter Tail's Rebuttal.

published. Although it acknowledges that the Board used Otter Tail's approach in FMC, BNSF argues that historical inflation data is more appropriate because the Board used such data in WPL, PPL, and TMPA, which are more recent than FMC. Any confusion caused by these varying approaches was resolved by the Board in Duke/NS. At page 37 of Duke/NS, the Board adopted the FMC approach used by Otter Tail when it concluded that "Forecasts of future inflation, when available, are more preferable to historical inflation rates." In this case, such forecasts are available.

The use of DRI-WEFA forecasts is preferable to BNSF's reliance on the change in historical indices for three additional reasons. First, BNSF acknowledges through its use of the DRI-WEFA forecasts for operating expenses that DRI-WEFA produces valid projections of the future. Second, the DRI-WEFA model represents specific assumptions about future price and wage changes for the specific indices. Third, the use of historical data as a projection of future events is useful only when accompanied by a demonstration that the historical events are indicative of the future, and BNSF has not made any such demonstration.

c. Land

BNSF adopts the same land inflation value Otter Tail uses in Opening (BNSF Reply at III.G-3) and Otter Tail continues to use it in Rebuttal.

3. Tax Liability

Otter Tail and BNSF adopt the same approach for calculating the federal and state tax liabilities of the OTRR. Otter Tail continues to follow that approach in Rebuttal.

4. Other

a. Capital Cost Recovery

Otter Tail and BNSF both use a 20-year DCF model to calculate the capital recovery cost of the OTRR. Both models use the "time-based" method of capital recovery.

b. Reparations

Defendants assert that the SAC evidence shows that the OTRR's costs substantially exceed its revenues and that Otter Tail is consequently not entitled to reparations. Defendants are incorrect, as explained in Section III-H.

III-H
RESULTS OF SAC ANALYSIS

III-H RESULTS OF SAC ANALYSIS

1. Results of SAC Analysis

On Opening, Otter Tail presented its DCF model results in Exhibit III-H-1, which reflected BNSF's tariff rates for Otter Tail's coal traffic moving to the Big Stone Station. On Reply, BNSF presented its DCF analysis at Reply Exhibit III.H-1[1]. On Rebuttal, Otter Tail is presenting the same DCF model that it presented on Opening, updated to incorporate the changes discussed, supra.

As discussed in Rebuttal Section III-G, Otter Tail has calculated OTRR's stand-alone cost of moving coal to the Big Stone Station. These calculations are summarized in this section and in Exhibit III-H-3 and Exhibit III-H-4. Otter Tail and BNSF follow the Board's basic DCF model for eight (8) of the thirteen (13) tables labeled Table A through Table L. The discussion of the DCF model below is on a table-by-table basis.

Table A -- Annual Cost of Capital

On Opening, Otter Tail and BNSF adopted the same approach in calculating the cost of debt and equity as well as the weighted cost of capital used to compute capital carrying charges. As discussed in Rebuttal Section III-G, supra, Otter Tail assumed that the OTRR will refinance its debt portion of its capital structure in 1Q03. For calculating the equity portion of its capital structure and the weighted cost of capital, OTRR and BNSF continue to adopt the same approach. Table 1II-H-4[2] displays the weighted average cost of capital used by the OTRR in Rebuttal, (Column (2)) and the weighted average cost of capital used by the BNSF in Reply (Column (3)).

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1 BNSF's March 22, 2004 Supplemental Reply evidence stated that the DCF results it presented follow the same methodologies presented in its October 8, 2003 Reply evidence.

2 Tables III-H-1 to III-H-3 were included in Otter Tail's June 13, 2003 Opening Evidence.

Table III-H-4
Weighted Average Cost of Capital

	Year (1)	OTRR (2)	BNSF (3)
1.	2002	10.21%	10.23%
2.	2003	9.23	10.48
3.	2004 - 2021	9.37	10.48

The 2004 - 2021 weighted average cost of capital, after refinancing and substituting the 2003 cost of equity as submitted by the AAR, used in Otter Tail's Rebuttal Exhibit III-H-3 and Exhibit III-H-4 is 9.37%.

Table B -- Inflation Indices

Table B contains the inflation indices used for road property assets. These indices are used to inflate road property assets, operating costs and land. The differences between Otter Tail and BNSF regarding these indices are fully discussed in Rebuttal Section III-G, supra. In Rebuttal, Otter Tail has adopted the June 2003 DRI-WEFA forecast which was used by BNSF in its Reply.

Table C -- Road Property Investment Values

Table C displays total start-up investment at 1Q02 levels. The differences between Otter Tail and BNSF regarding road property investment values are fully discussed in Rebuttal Section III-F, supra. In Rebuttal, Otter Tail continues to follow the same methodology that it used in Opening.

Table D -- Interest During Construction

Otter Tail and BNSF adopt the same approach for calculating the Interest During Construction ("IDC") which would accrue on the assets of the OTRR.

Table E -- Amortization Schedule Of Assets Purchased With Debt Capital

In Rebuttal due to refinancing, Table E is calculated by Otter Tail by running the DCF's iterative process twice. After the first DCF calculation, the interest expense values in Columns (6), (11) and (16) are frozen for the four quarters of 2002. Then the interest rate is changed to the refinanced rate of 4.99% and Table E is calculated a second time using the new interest rate for years 2003 through 2021.

Table F -- Present Value of Replacement Cost

Otter Tail and BNSF adopt the same approach for calculating the additional investment (on a present value basis) for the OTRR to replace its assets indefinitely in Table F of the DCF model, which is then added to the initial investment in Table I prior to determining the quarterly cash flows. Otter Tail in Rebuttal has updated the calculation to use the industry average cost of capital and cost of debt for 1999-2003.

Table G -- Tax Depreciation Schedules

Otter Tail and BNSF adopt the same approach for calculating the tax depreciation required under the Federal Tax Code currently in effect in Table G of the DCF model.

Table H -- Average Annual Inflation In Asset Prices

Otter Tail and BNSF adopt the same approach for calculating the average annual inflation rate in Table H for indexing the capital recovery charge in Table I of the DCF model in order to recover the investment. All road property accounts are indexed at the quarterly rates shown in Table B, and the weighted average inflation rates are based on the inflation indexes discussed in Rebuttal Section III-G, supra.

Table I -- Discounted Cash Flow

Otter Tail and BNSF adopt the same approach for calculating the capital carrying charge and associated flow of funds to recover the total road property investment in Table I of the DCF model. Inputs for Table I include Table C (road property investment), Table D (interest during construction), Table E (tax benefits associated with interest on the investment financed with debt), Table F (present value of replacement investment), and Table G (road property tax depreciation). Because of debt refinancing, capital recovery (Column (3)) is fixed at the end of the first iterative process (4Q02) and then calculated a second time using the revised weighted cost of capital.

Table J -- Part 1 Computation Of Federal Tax Liability -- Taxable Income

Otter Tail and BNSF adopt the same approach for calculating the OTRR's federal tax liability in Table J - Part 1 of the DCF model, using the procedures discussed in Section III-G-3, supra.

Table J -- Part 2 Computation Of State Tax Liability -- Taxable Income

Otter Tail and BNSF adopt the same approach for calculating the OTRR's state income tax liability in Table J - Part 2 of the DCF model, using the procedures discussed in Section III-G-3, supra.

Table K -- Operating Expenses

Otter Tail and BNSF adopt the same approach for calculating the OTRR's operating expenses in Table K of the DCF model, using the inflation rates shown in Table B except that BNSF modifies expenses related to Material and Supplies.

At page III.H-4, BNSF states that Table K "...includes a modification of Otter Tail's calculations to adjust Materials and Supply Operating [expenses] to reflect changes in traffic levels consistent with the Board's DCF procedures." On October 21, 2003, Otter Tail requested that BNSF provide

the workpapers that support the above statement including specific cites to Board decisions. This workpaper request was labeled No. 21.[3] BNSF responded on October 31, 2003 and stated " it specifically objects to the following requests on grounds that they are unauthorized discovery requests seeking additional information relating to BNSF's reply evidence or an elaboration on the substance of BNSF reply evidence: 4;5;6; and 21."[4] Stated differently, BNSF has not provided any support for its adjustment and therefore, Otter Tail has not adjusted the Material and Supplies operating expenses in Rebuttal.

As noted in Rebuttal Section III-G, BNSF used DRI-WEFA's forecast of the RCAF-U, whereas Otter Tail used DRI-WEFA's forecast of the RCAF-A. For the reasons stated in Otter Tail's Rebuttal Section III-G, Otter Tail's use of the RCAF-A for operating expenses is correct.

Also at page III.H-4, BNSF is critical of Otter Tail's calculation of stand-alone maintenance of way expenses. For the reasons stated in Otter Tail's Rebuttal Section III-D-4, BNSF's criticisms are not valid and Otter Tail's approach to calculate stand-alone maintenance of way expenses is correct.

Table L -- Summary of SAC

Otter Tail and BNSF both summarize the total SAC for the OTRR based on investment and operating costs in Table L of the DCF model, using the capital requirement from Table I and the annual operating expenses from Table K. Because of Otter Tail's debt refinancing, Table L Column (11) is fixed for the 1Q02 through 4Q02 time period. For 1Q03 through the end of the DCF Model life a second DCF calculation is made utilizing the refinanced cost of debt.

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3 See Otter Tail Rebuttal Workpaper Vol III, pp 6502 to 6505.
4 See Otter Tail Rebuttal Workpaper Vol III, pp 6506 to 6511.

As presented in Otter Tail's Rebuttal Section III G, Otter Tail presented two (2) methods to determine measures of productivity on the OTRR. Table III-H-5 below compares the impact on the Otter Tail rebuttal stand-alone costs of using the RCAF-A to inflate operating expenses, with the impact of using productivity included in the EIA forecast of coal (applied only to coal traffic) to inflate operating expenses, and with the impact of using the RCAF-U to inflate operating expenses.

Table III-H-5
Impact of Alternative Productivity Calculations
On Otter Tail SAC Results - Aluminum Cars

	Item (1)	RCAFA [1] (2)	EIA Productivity Alternative [2] (3)	RCAFU [3] (4)
1.	1Q02	$8.33	$8.33	$8.33
2.	4Q06	8.55	8.85	9.12
3.	4Q11	9.02	9.47	10.10
4.	4Q16	9.89	10.49	11.56
5.	4Q21	10.94	11.69	13.30

1 "Exhibit III_H_3SP.123".
2 "Exhibit III_H_3SPEIA.123".
3 "Exhibit III_H_3SPRCAFU.123".

As displayed in Table III-H-5 above, using the RCAF-A to index operating expenses results in a reasonable SAC cost.

2. Reparations

The stand-alone cost calculations of Otter Tail and BNSF are significantly different because the parties use significantly different assumptions and inputs. In Opening, Otter Tail showed that BNSF's rates were substantially greater than both the jurisdictional threshold and the stand-alone

costs and that Otter Tail is entitled to substantial reparations. In Reply, BNSF confirmed that its rates exceeded the jurisdictional threshold, but indicated that its rates did not exceed stand-alone costs.

In Rebuttal, Otter Tail has made a limited number of adjustments to its stand-alone cost calculations in response to BNSF's criticisms. However, the majority of BNSF's criticism have no value and were rejected. As such, Otter Tail's revised calculations still show that BNSF's tariff rates for the issue traffic are still substantially greater than the levels permitted under the jurisdictional threshold and stand-alone cost tests.

a. Maximum Rate Calculations

The maximum rate for the movement of coal from each origin to the Big Stone Station equals the greater of the jurisdictional threshold calculation or stand-alone costs. Table III-H-6 compares BNSF's rate levels (Column (2)) to the jurisdictional threshold calculation (Column (4)) and the stand-alone costs for Otter Tail's base case (Column (5)) and for Otter tail's alternate case (Column (6)). In each quarter from 1Q01 through 1Q03, the BNSF rate per ton is greater than both the jurisdictional threshold and stand-alone cost. Therefore, the maximum rate equals the greater of the jurisdictional threshold or stand-alone cost and is summarized in Columns (7) for Otter Tail's base case and Column (8) for Otter tail's alternate case of Table III-H-6 below for shipments in aluminum cars.

Table III-H-6

Summary of Maximum Rate Calculations for

Issue Traffic in Aluminum Cars -- 1Q02 through 1Q03

Time Period (1)	BNSF Rate Per Ton [1] (2)	BNSF Variable Cost Per Ton [2] (3)	Jurisdictional Threshold Per Ton [3] (4)	Stand-Alone Cost Per Ton Base[4] (5)	Stand-Alone Cost Per Ton ALT[5] (6)	Maximum Rate Per Ton Base[6] (7)	Maximum Rate Per Ton ALT[7] (8)
A. 1Q02							
1. Belle Ayr	$13.49	$5.09	$9.16	$8.33	$10.29	$9.16	$10.29
2. Eagle Butte	$13.49	4.96	8.93	8.33	10.29	8.93	10.29
B. 2Q02							
3. Belle Ayr	$13.49	$5.13	$9.23	$8.24	$10.17	$9.23	$10.17
4. Eagle Butte	$13.49	5.03	9.05	8.24	10.17	9.05	10.17
C. 3Q02							
5. Belle Ayr	$13.49	$5.13	$9.23	$8.18	$10.11	$9.23	$10.11
6. Eagle Butte	$13.49	5.06	9.11	8.18	10.11	9.11	10.11
D. 4Q02							
7. Belle Ayr	$13.49	$5.23	$9.41	$8.25	$10.19	$9.41	$10.19
8. Eagle Butte	$13.49	5.09	9.16	8.25	10.19	9.16	10.19
9. Cordero	$13.49	5.36	9.65	8.25	10.19	9.65	10.19
10. Caballo Rojo	$13.49	5.07	9.13	8.25	10.19	9.13	10.19
E. 1Q03							
11. Belle Ayr	$13.76	$5.51	$9.92	$8.01	$9.88	$9.92	$9.92
12. Eagle Butte	$13.76	5.52	9.94	8.01	9.88	9.94	9.94

[1] Common Carrier Pricing Authority BNSF 90062 for 1Q02 through 4Q02, BNSF 90062A for 1Q03.

[2] Exhibit II-A-41 through II-A-53.

[3] Column (3) x 180 percent.

[4] Exhibit III-H-3.

[5] Exhibit III-H-4.

[6] Greater of jurisdictional threshold (Column (4)) or stand-alone cost (Column (5)).

[7] Greater of jurisdictional threshold (Column (4)) or stand-alone cost (Column (6)).

The maximum rates in each quarter (Column (7) base case and Column (8) alternate case are less than BNSF's rate in each quarter (Column (2)) and therefore reparations need to be calculated.

b. Reparations Calculation

The Commission's decision in Guidelines[5] and the Board's decisions in WTU and APS are in agreement on the following issues:[6]

1. A stand-alone cost analysis identifies the point where captive traffic cross-subsidizes other shippers on the railroads;
2. Cross-subsidies should be avoided; and
3. The amount of a cross-subsidy is the amount by which total revenues exceed the total costs of serving that traffic by itself.

As demonstrated in Section III-G, supra, the stand-alone analysis submitted by Otter Tail shows that the traffic included in the stand-alone system is cross-subsidizing other BNSF traffic. The total annual revenues actually received by BNSF beginning on January 2, 2002 under Pricing Authority 90062 greatly exceed the stand-alone costs of serving such traffic. Table III-H-7 below summarizes the aggregate savings associated with constructing and operating the OTRR in the base case, i.e. the amount that actual revenues exceed stand-alone costs for each quarter in 2002, 2003 and 2004 (through March 28, 2004). Table III-H-7 also shows the percent reduction that is applied to the rates of all traffic in the stand-alone group. When the percent reduction is applied to the rates Otter Tail paid to BNSF, a maximum rate based on stand-alone costs results. When the percent reduction is

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5 1 I.C.C. 2d at 524-25 and 548.

6 The major railroads are also in agreement on these issues. See Amicus Brief of Eastern and Western Railroads in ICC Docket No. 38783, Omaha Public Power District v. Burlington Northern Railroad Company, dated February 24, 1986.

hypothetically applied to the other rates of the stand-alone traffic group, the differential pricing that is realized by BNSF is maintained.

Table III-H-7
Aggregate Savings Of Constructing, Operating and Maintaining OTRR - 1Q02 though 1Q04 - Base Case
($ In Millions)

	Quarter (1)	Aggregate Revenues [1] (2)	Aggregate Stand-Alone Costs [1] (3)	Aggregate Overpayments [2] (4)	Percent Reduction [3] (5)
1.	1Q02	$208.1	$126.5	$81.6	39.21%
2.	2Q02	208.1	125.0	83.1	39.92
3.	3Q02	208.1	124.2	83.9	40.32
4.	4Q02	208.1	125.2	82.9	39.80
5.	1Q03	207.2	118.7	88.5	42.73
6.	2Q03	207.2	122.1	85.1	41.08
7.	3Q03	207.2	122.1	85.1	41.07
8.	4Q03	207.2	122.0	85.2	41.09
9.	1Q04	209.3	124.2	85.1	40.66

1/ Source: Exhibit III-H-3.
2/ Column (2) minus Column (3).
3/ (Column (4) ÷ Column (2)).

Table III-H-8 below summarizes the aggregate savings and the percent reduction associated with the alternative case.

Table III-H-8

Aggregate Savings Of Constructing, Operating and Maintaining OTRR - 1Q02 though 1Q04 - Alternative Case

($ In Millions)

	Quarter	Aggregate Revenues [1/]	Aggregate Stand-Alone Costs	Aggregate Overpayments [2/]	Percent Reduction [3/]
	(1)	(2)	(3)	(4)	(5)
1.	1Q02	$168.8	$127.7	$441.1	24.33%
2.	2Q02	168.8	126.2	42.6	25.23
3.	3Q02	168.8	125.4	43.4	25.73
4.	4Q02	168.8	126.5	42.3	25.08
5.	1Q03	168.7	120.0	48.7	28.87
6.	2Q03	168.7	123.4	45.2	26.82
7.	3Q03	168.7	123.5	45.2	26.81
8.	4Q03	168.7	123.4	45.3	26.85
9.	1Q04	169.4	125.5	43.9	25.90

1/ Source: Exhibit III-H-4.
2/ Column (2) minus Column (3).
3/ (Column (4) ÷ Column (2)).

The approach utilized to allocate the aggregate savings (overpayments) to the users of OTRR and to calculate the principal amount of reparations due to Otter Tail is discussed below.

c. Reparations Based on Stand-Alone Costs

In Coal Trading, the ICC prescribed a methodology for calculating reparations. In describing how to calculate reparations, the ICC stated:

> "The ratio of computed overpayments to actual annual revenues can be applied to either the complainants' actual issue traffic revenues during the period or the rate at issue in each time period multiplied by the tons tendered to determine the reparations due."[7]

In calculating reparations due to Otter Tail based on the stand-alone cost calculation, the following formula was solved for each quarter from 1Q02 through 1Q04. The sum resulting from solving this formula equals the total reparations due to Otter Tail in each quarter for each BNSF rate level based on stand-alone costs. The formula can be expressed as follows:

$$\mathbf{OTR} = \sum \mathbf{(RP - (RP \times (1 - (SACO/SACR)))) \times T}$$

Where:

OTR	=	Otter Tail Reparations
RP	=	Rate actually paid by Otter Tail to BNSF
SACO	=	Aggregate of DCF model stand-alone overpayments for quarter
SACR	=	Aggregate DCF model revenues for quarter
T	=	Total tons in quarter for applicable movement

d. <u>Jurisdictional Threshold Considerations</u>

An additional adjustment to the reparation calculations is needed if the stand-alone rate falls below the jurisdictional threshold. Determining whether this is the case requires a comparison of the stand-alone rate and the jurisdictional threshold. For each quarter, the greater of stand-alone

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7 6 I.C.C. 2d 436 (and 520)

costs and the jurisdictional threshold equals the maximum reasonable rate used to calculate the principal amount of reparations due Otter Tail.

In calculating reparations due to Otter Tail based on the jurisdictional threshold, the following formula was solved for each quarter from 1Q02 through 1Q04[8]. The sum resulting from solving this formula equals the total reparations due to Otter Tail in each quarter for each BNSF rate level based on the jurisdictional threshold. The formula can be expressed as follows:

$$\mathbf{OTR} = \sum \mathbf{(RP - JT) \times T}$$

Where:

OTR	=	Otter Tail Reparations
RP	=	Rate actually paid by Otter Tail to BNSF
JT	=	Applicable jurisdictional threshold per ton for quarter
T	=	Total tons in quarter for applicable movement

Otter Tail calculated the principal amount of reparations on a movement-by-movement basis, using the greater of the stand-alone rate or the jurisdictional threshold. A summary of these calculations is shown in Column (2) of Table III-H-9 below for the January 1, 2002 through March 28, 2004 period.

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[8] Since the jurisdictional threshold has not been calculated for movements in 2Q03 through 1Q04, the 1Q03 jurisdictional thresholds from each origin have been applied to movements from the same origins in 2Q03, 3Q03, 4Q03 and 1Q04 to calculate reparations due Otter Tail.

Table III-H-9
Principal Amount of Reparations
Due Otter Tail through March 28, 2004
($ in Millions)

	Quarter (1)	Base (2)	Alternative (3)
1.	1Q 2002	$2.5	$1.8
2.	2Q 2002	2.1	1.6
3.	3Q 2002	1.8	1.4
4.	4Q 2002	1.9	1.5
5.	1Q 2003	2.0	2.0
6.	2Q 2003	1.9	1.8
7.	3Q 2003	2.0	1.9
8.	4Q 2003	1.9	1.8
9.	1Q 2004 [1/]	2.2	2.1
10.	Total	$18.3	$15.9

Source: Exhibit III-H-5, Exhibit III-H-6 and electronic workpapers "OT Rebuttal Reparations Base.123." and "OT Rebuttal Reparations Alt.123."

1/ Through March 28, 2004.

Table III-H-9 above shows for the period from January 1, 2002 through March 28, 2004, that BNSF owes Otter Tail between $18.4 and $15.9 million in principal reparations payments.[9]

In addition to the principal amount of reparations, interest from the date of the first unlawful charge needs to be identified and paid to Otter Tail. Otter Tail reserves the right to demonstrate that interest should be calculated by a methodology different from that set forth in 49 C.F.R. Part 1141.1,

[9] Exhibit III-H-7 is a flow chart of all Otter Tail's Rebuttal electronic files that are linked. The exhibit identifies the links by spreadsheet name and how the links flow. Exhibit III-H-7, page 1 of 2, identifies the links between the variable cost electronic files in Section II-A, and page 2 of 2 identifies the links between the stand-alone files in Section III. Additional information regarding the procedures for replicating the links in Otter Tail's Rebuttal electronic files is contained in Otter Tail electronic workpaper "STB LINKING PROCEDURES OTP REBUTTAL.WPD".

which is calculated at a rate equivalent to the average yield of the 13 week United States Treasury Bills, compounded quarterly.

Among other reasons why this methodology is inappropriate in this case, the use of the 13 week Treasury Bill rate would result in windfall profits to BNSF. By applying the Treasury Bill rate (which is 0.870% for the issue date of December 26, 2003) to the principal amount of reparations owed by BNSF, the Board would enable BNSF to reap a substantial monetary benefit from the large disparity between the Treasury Bill rate and the BNSF's cost of capital.

IV
WITNESS QUALIFICATIONS

BEFORE THE
SURFACE TRANSPORTATION BOARD

OTTER TAIL POWER COMPANY	)	
Complainants,	)	
v.	)	**Docket No. 42071**
THE BURLINGTON NORTHERN AND SANTA FE RAILWAY COMPANY	)	
Defendant.	)	

PART IV

WITNESS QUALIFICATIONS AND VERIFICATIONS

This Part contains the Statements of Qualifications of five (5) additional witnesses who have not previously sponsored evidence on behalf of Otter Tail in this proceeding. It also contains the Verifications of all seventeen (17) witnesses sponsoring Otter Tail's Rebuttal evidence. Statements of Qualifications for all Otter Tail witnesses appear below or in Part IV of Otter Tail's Opening Narrative.

1. GEORGE H. BORTS

My name is George H. Borts. I am an economist. My address is 220 Slater Avenue, Providence, Rhode Island, 02906. I am a Professor of Economics at Brown University in Providence, Rhode Island, and from 1964 to 1967, I was Chairman of the Economics Department. I was managing editor, from 1969 to 1980, of the American Economic Review, a publication of the

American Economic Association. In 1990 and 1991, I served as managing editor of the Brown University World Business Advisory. The specific evidence I am sponsoring on behalf of Otter Tail Power Company in STB Docket 42071 pertains to the economic and policy aspects of grouping and cross-over traffic under the Coal Rate Guidelines discussed in Part III.A. of Otter Tail's Rebuttal Evidence.

I hold a B.A. degree from Columbia University, received in 1947; a Master of Arts degree from the University of Chicago, received in 1949; and a Ph.D. degree from the University of Chicago, received in 1953.

I am a member of the American Economic Association, the Econometric Society, and Phi Beta Kappa.

The title of my doctoral thesis is "Cost and Production Relations in the Railway Industry." I have written a number of articles on cost functions and production functions in railroads. These were published in Econometrica and the Journal of Political Economy. I have also written on the indexation of rail contracts for the Transportation Journal.

In regulatory matters, I have presented evidence before the Federal Energy Regulatory Commission concerning market power in oil pipelines. I have served as a consultant to various Canadian provinces in several proceedings, investigations, and studies during the past thirty-five years. I completed a study of cost of capital requirements for Canadian railroads, and presented evidence before the Canadian Transport Commission.

I have presented evidence before the Interstate Commerce Commission on issues involving cost finding, the cost of capital, revenue adequacy, the determination of market dominance and monopoly power, measurement of railroad productivity, freight car supply, compensation for the use of private

hopper and tank cars, and railroad cost recovery procedures.

Most recently, I presented evidence before the Surface Transportation Board in STB Docket No. 42057, Public Service Company of Colorado d/b/a Xcel Energy v. The Burlington Northern and Santa Fe Railway Co.; STB Docket No. 42058, Arizona Electric Power Cooperative, Inc. v. Burlington Northern and Santa Fe Railway Co. and Union Pacific Railroad Co.; Docket No. 42069, Duke Energy Corp. v. Norfolk Southern Railway Co.; Docket No. 42054, PPL Montana LLC v. Burlington Northern and Santa Fe Railway Co.; Docket No. 42051, Wisconsin Power and Light Co. v. Union Pacific Railroad Co.; Docket No. 42022, FMC Wyoming Corp. v. Union Pacific Railroad Co.; Docket No. 41989, Potomac Electric Power Company v. CSX Transportation, Inc.; Docket Nos. 41626, 41242, and 41295, the so-called Bottleneck Regulation Cases; Finance Docket No. 32760, Union Pacific Corporation - Control and Merger - Southern Pacific Rail Corporation; and Finance Docket No. 32630 (Sub. No. 1), Omaha Public Power District - Burlington Northern Railroad Company, Crossing Compensation.

I have also presented evidence before the Interstate Commerce Commission in Finance Docket No. 32549, Burlington Northern Railroad Company - Control and Merger - The Atchison, Topeka and Santa Fe Railway Company; Docket No. 41242, Central Power and Light Company v. Southern Pacific Transportation Company; Docket No. 37038, Bituminous Coal--Hiawatha, Utah to Moapa, Nevada; Docket No. 38025S, Dayton Power and Light Company v. Louisville and Nashville Railroad Company; Docket No. 38301 S, Coal Trading Corporation el al. v. Baltimore and Ohio Railroad et al.; Finance Docket No. 27590 (Sub-No. 1), Approval of the Pooling of Car Service With Respect to Flat Cars, Trailer Train Co., et al.; Docket No. 39169, Shippers Committee, OT-5, v. The Ann Arbor Railroad Company et al.; Ex Parte No. 347 (Sub-No.2), Rate Guidelines-- Non-Coal

Proceedings; Docket No. 39896, U.S. Clay Producers Traffic Association, v. Boston and Maine Corporation et al.; and Docket No. 39117, LO Shippers Action Committee v. Aberdeen and Rockfish Railroad Company, et. al. I have also presented evidence in the Coal Rate Guidelines investigations, Ex Parte No. 347; revenue adequacy investigations, Ex Parte No. 353 and 393; and market dominance investigations, Ex Parte No. 320.

In June 1986, I participated as one of four economic experts in the Railroad Accounting Principle Board's Colloquium on Cost Issues.

I have served as a consultant to the National Science Foundation, to the Undersecretary of Commerce for Transportation, to the New England Motor Freight Association, to the National Motor Freight Traffic Association, the Western Coal Traffic League, and to the New England Telephone Company.

I have also served as an arbitrator of disputes over rail freight contracts.

In addition to research in transportation, I am co-author of a book with J.L. Stein, entitled: Economic Growth in a Free Market, published by the Columbia University Press in 1964. I am author of a monograph entitled, Regional Cycles of Manufacturing Employment, published by the National Bureau of Economic Research in 1959. I have also published articles on regulatory matters and on regional and international economics in the American Economic Review, the Journal of Political Economy, the Journal of International Economics, and in various conference volumes.

2. DR. GARY M. ANDREW

Dr. Andrew is a Senior Consultant with the economic consulting firm of L. E. Peabody & Associates, Inc. The firm's offices are located at 1501 Duke Street, Suite 200, Alexandria, Virginia 22314. Dr. Andrew is sponsoring Rebuttal evidence pertaining to the division of revenue for crossover traffic.

Dr. Andrew received a Bachelor of Arts degree in Mathematics from DePauw University in 1961, the Bachelor of Science in Management Science from Case Institute of Technology in 1961, the Doctor of Philosophy degree from Case Institute of Technology in 1966. Dr. Andrew's major field of study was operations research, with a minor in statistics. Dr. Andrew also completed every advanced course in statistics and econometrics at Case Institute of Technology offered between 1961 and 1964.

At the Case Institute of Technology, Dr. Andrew taught courses in statistics, sampling and operations research, and worked in the Case Operations Research Group and the Case Statistical Laboratory on research projects in theoretical and applied statistics, including transportation problems. Dr. Andrew was a member of a research team that developed one of the first digital computer simulations of railroad operations for a division of the C&O Railroad.

From 1964 to 1971, Dr. Andrew taught courses and advised students and persons in business in theoretical and applied statistics, sampling, and operations research in the School of Business Administration and the Department of Statistics at the University of Minnesota, Minneapolis, Minnesota. During this period, Dr. Andrew consulted with several railroads, truckers, airlines, and shippers and presented testimony before the Interstate Commerce Commission in numerous rates, abandonment and merger cases. Dr. Andrew has also published articles and consulted on

work sampling procedures. Dr. Andrew's consultations have included pricing decisions for several firms.

In 1971, Dr. Andrew became Director of Planning and Analysis at the University of Colorado and, in June 1974, he was promoted to Vice Chancellor for Administration in charge of all support activities on the Boulder Campus. Dr. Andrew's responsibilities included estimation, justification and cost control for over $50 million in construction for the University during his tenure. Dr. Andrew also had responsibility for both the United States Postal Service installation on the Boulder campus and the private mail system for the four campuses. Dr. Andrew was on the Graduate Faculty of the School of Business and continued his consulting practice in statistical sampling and estimation procedures in addition to his administrative responsibilities at the University of Colorado.

In September of 1978, Dr. Andrew resigned his administrative position at the University of Colorado to devote full time to consulting and other business interests. Dr. Andrew formed Infomap, Inc., a computer mapping and software firm specializing in the geographical display of statistical data, developed this company and sold it to Rand McNally and Company in 1983. Dr. Andrew worked as Director of Internal Consulting for Rand McNally until 1986.

For 35 years, Dr. Andrew has worked with the firm of L. E. Peabody & Associates, Inc. as a consultant on various special projects. In January 1988, Dr. Andrew joined the firm as a Senior Consultant. Dr. Andrew's work with L. E. Peabody & Associates, Inc. has included the development of mathematical models of economic systems, statistical sampling procedures and statistical models for analyzing the relationship between costs and volumes in large data bases. Dr. Andrew has, on numerous occasions, presented testimony in rate proceedings as an expert witness

in mathematical modeling. Dr. Andrew presented testimony on costing models before the Postal Rate Commission in Docket No. R90-1, Postal Rates and Fee Changes, 1990, and testimony in Docket No. R94-1, Postal Rate and Fee Changes, 1994.

Dr. Andrew is a member of the American Statistical Association and the Institute for Operations Research and the Management Sciences. Dr. Andrew has published papers on statistics in recognized professional journals and has won awards for work in economics and statistics including the Carlton Prize in Economics at Case Institute of Technology.

Dr. Andrew was a reviewer of and a contributor to The Guidelines for the Presentation of the Results of Sample Studies, Statement No. 71-1 (Interstate Commerce Commission, February 1971).

3. DAVID G. WEISHAAR

Mr. Weishaar is an independent rail marketing consultant. His address is 6204 - 140th Avenue, Holland, Michigan 49423. Mr. Weishaar is sponsoring Rebuttal evidence pertaining to the division of revenue for crossover traffic.

Mr. Weishaar has over 30 years of experience in the pricing and marketing of rail transportation services, primarily with the former Chicago and North Western Railway Company ("CNW"). His railroad career began with the Chicago and Eastern Illinois Railroad ("CEI") in 1964, where he served in various pricing and administrative positions including Chief Rate and Division Clerk. Mr. Weishaar joined CNW in 1969, and from 1969 to 1973 held various pricing and sales positions involving coal, iron and steel, scrap iron, iron ore, petroleum and automobiles. In 1976 Mr. Weishaar moved to the Energy Marketing department, which at the time was responsible for marketing and pricing of coal, petroleum and petroleum products. Mr. Weishaar served as Market Manager - Energy until 1978, when he was named CNW's General Market Manager for iron and steel, scrap iron, iron ore and automobiles (the latter were moved by CNW primarily in interline service).

In 1979, Mr. Weishaar returned to CNW's Energy Marketing department, where he served as General Market Manager - Energy from 1979 to 1984, Assistant Vice President Sales & Marketing - Energy from 1984 to 1987, and Vice President Sales & Marketing - Energy from 1987 to 1995. In 1995, shortly before CNW was acquired by the Union Pacific Railroad (UP), Mr. Weishaar retired from CNW and began a consulting practice. Since leaving CNW he has served as a marketing/pricing consultant to various utilities and railroads in matters pertaining primarily to coal transportation.

During Mr. Weishaar's 16-plus year career in CNW's Energy Marketing department, he was intimately involved with CNW's project in the early 1980's to construct more than 100 miles of new railroad to access the Powder River Basin (PRB), and was involved in the negotiation of the initial

divisions agreement between Western Railroad Properties, Inc. ("WRPI"), CNW's PRB coal-hauling subsidiary, and UP which was WRPI's only "friendly" connection for the movement of PRB coal. He was involved in the financing of the WRPI project, and represented CNW in negotiating what was then the largest rail transportation contract ever signed - a contract among WRPI/CNW, UP and the Missouri Pacific Railroad to move coal to two power plants in Arkansas (executed in 1983). Starting in 1984, when WRPI began service, Mr. Weishaar had responsibility for the overall marketing, planning and development of WRPI and the "core" CNW (lines east of Omaha/Council Bluffs) coal traffic. In this regard he led the efforts to market CNW/UP's PRB coal transportation services in competition with BN, including the 1985-1994 period of expansion of the market for PRB coal to utilities in the east, southeast and far west, as well as CNW's transportation services for other coals.

Mr. Weishaar has been involved in numerous negotiations of revenue divisions for interline movements of various commodities, including iron and steel (at both CEI and CNW), automobiles, and of course coal. With respect to coal, CNW (or its PRB subsidiary WRPI) had every role imaginable for interline coal movements, including originating carrier only, terminating carrier only, bridge carrier only, and both originating carrier (WRPI) and terminating carrier (core CNW). Mr. Weishaar was responsible for negotiating the divisions for all of these kinds of interline movements, with respect to both PRB coal (which it originated), other western coals (which it terminated or handled in bridge service), Illinois Basin coal (which it also originated), and Appalachian coals (which it handled as a terminating carrier connecting with CSXT, NS and Conrail at Chicago).

4. FRANK R. HARDER

Mr. Harder is a Principal of The Tioga Group, Inc. ("Tioga"), a transportation logistics and consulting group. His offices are located at 1617 JFK Boulevard, Suite 1252, Philadelphia, PA 19103. Mr. Harder is co-sponsoring (along with Mr. Stephen C. Nieman) evidence related to the intermodal traffic in Part III-A.

At Tioga, Mr. Harder specializes in surface freight transportation markets, operations, economics, and technologies with an emphasis on intermodal applications. Mr. Harder has been a transportation consultant since 1992, when he founded Intermodal Management, Inc., one of Tioga's predecessor firms.

Mr. Harder's activities include marketing new intermodal applications, supporting Class I rail intermodal operations and creating private/public partnerships to develop large freight infrastructure projects.

Mr. Harder is involved in the New York City Economic Development Corporation's project to reactivate the New York City-owned Staten Island Railway. Mr. Harder specifically works on the portion of this project related to the Staten Island rail market, the prospective operations and the financing of the Staten Island Railway.

Some of Mr. Harder's prior clients for intermodal consulting include the Association of American Railroads, CSX, BNSF, CN, FEC, and Emons. Mr. Harder has consulted these entities on topics such as terminal efficiency and cost, intermodal yield management, new terminal development, emergency terminal management service, and the sale of Conrail. In addition, Mr. Harder has worked with an intermodal unit of the South African Railway, as well as industry suppliers and government agencies.

Mr. Harder evaluated the business processes in six marine communities for the Federal Highway

Administration and the Office of Intermodalism. This evaluation required the identification of the critical operation problems and existing data systems in use by ocean shipping lines, motor carriers, railroads, ports, intermodal terminals and highway providers. In addition, Mr. Harder assessed the feasibility of applying advanced technologies including ITS technologies to address the critical operating problems.

Mr. Harder has been in the transportation business since 1979. He began his transportation career working for Conrail, where his initial title was Manager of Field Studies. His responsibilities included rail and motor carrier intermodal operations, intermodal terminal design, terminal network planning and intermodal capital budgeting.

In 1980, Mr. Harder joined Pennsylvania Truck Lines, a large U.S. intermodal motor carrier and terminal operator. Pennsylvania Truck Lines was a subsidiary of Conrail and functioned as the railroad's intermodal operation department until it was spun off and acquired by its management team (which included Mr. Harder) in 1990. After the company was spun off and renamed PTL, Mr. Harder served as Vice President of Marketing and was a minority owner.

Mr. Harder is a member and former chairman of the Transportation Research Board's Committee on Intermodal Freight Transport. He is a former member of Association of American Railroads' Intermodal Productivity Task Force, the Transportation Research Board's Study Committee on Landside Access to U.S. Ports, and the American Transportation Association's Marketing and Sales Council.

Mr. Harder has authored and co-authored a number of articles related to transportation, including:

i. "MPOs and Railroad Intermodal Terminals: Successful Development Strategies," Eno Transportation Foundation Transportation Quarterly Volume 53, No. 2, Spring 1999, at 31 to 44. This paper documents factors that drive private-sector decisions regarding the location and placement of intermodal freight transportation facilities for the benefit of public sector planners and decision-makers.

ii. "A Clear Track for Double-Stack," Railway Age, April 1994, at 45 to 47. This article, co-authored with R. Blanchard, discusses the public/private partnership of PennDOT, shippers, the Port of Philadelphia, and two Class I railroads that brought Pennsylvania into the continental double-stack network.

iii. "Intermodal Terminal Capacity and Outlook," AAR Intermodal Trends, Volume V, Numbers 4, 6, and 9. This series of articles, co-authored with D. Smith, compared anticipated growth in the intermodal industry with existing terminal capacity in ten key metropolitan regions. The articles estimated the magnitude of the year 2000 capacity shortfall and prescribed methods for developing the required capacity, such as efficient means for development of new infrastructure and opportunities for increased operation productivity.

iv. Mr. Harder assisted Gerhard Muller with preparation of sections for the most recent edition of the intermodal industry's handbook, Intermodal Freight Transportation, Third Edition, 1995.

Mr. Harder received a Bachelors of Science degree and a Masters of Business Administration with a concentration in Transportation and Logistics from the University of Minnesota.

5. STEPHEN C. NIEMAN

Mr. Nieman is a Principal at Tioga, a transportation logistics and consulting group. His offices are located at 3283 Surmont Drive, Lafayette, CA 94549. Mr. Nieman is co-sponsoring (along with Mr. Harder) evidence relating to intermodal traffic in Part III-A.

Mr. Nieman has a wealth of experience in general management, strategic planning and marketing for international and North American transportation and distribution clients.

Prior to joining Tioga in 1997, Mr. Nieman headed the motor carrier, logistics service provider and intermodal practices of Mercer Management Consulting for six years. In this position, Mr. Nieman served as the primary author of a number of marketing and strategic plans. He sponsored and created strategies for two railroad intermodal divisions and for the domestic strategy for a major containership line. Mr. Nieman has been involved in strategic planning for the international division of a major containership line. He has either managed or participated in market strategy development for over 30 new freight services. As a consultant, Mr. Nieman has participated in freight strategy formulation for shippers, domestic container providers and international containership lines.

As a profit center general manager, Mr. Nieman has a history of successful implementation in a full range of business circumstances, ranging from start-ups through growth and maturity to orderly disposition of selected businesses. His strategic planning and business development activities have included trucking, freight forwarding, airfreight, ocean shipping, bulk commodities and transloading.

Mr. Nieman has commissioned, conducted and supervised numerous qualitative and quantitative market research studies. A key ingredient in the success of these studies has been a careful pairing of research method and technology with critical business questions. Mr. Nieman is familiar with the methodologies used in both strategy formulation and market segmentation. He has employed these methods as the client, the project manger or a consultant team member.

Over the last 30 years, Mr. Nieman has held senior-level positions with major companies in the truck, intermodal and railroad industries, including American President, Burlington Northern, Consolidate Frieghtways, IU International, and Leaseway Transportation. He has served as Chief Executive Officer, Chief Operating Officer or General Manager of five companies or divisions.

Mr. Nieman started his intermodal career in 1963 as Director of Transportation for Consolidated Freightways. In this capacity, he directed all of CF's line haul planning. As a part of those responsibilities, he purchased intermodal services for CF, and he opened two new intermodal lanes, Chicago to Salt Lake City and Chicago to Oakland.

Mr. Nieman also served as Group Vice President of the Burlington Northern Railroad ("BN") from 1986 to 1988. Mr. Nieman managed BN's intermodal international and automotive business units. While at BN, Nieman was the first "trucker" to head up an intermodal unit at the railroad. He created three new domestic intermodal services for the company. Significantly, BNSF/UP witness Berry reported to Mr. Nieman when the two worked together at BN.

In addition, Mr. Nieman served as Vice President of Planning and Marketing at American President Lines ("APL") from 1988 to 1991. While at APL, which is an intermodal transportation company and one of the largest users of U.S. rail intermodal services, Mr. Nieman led the design and implementation plan for the first U.S. domestic container service.

Mr. Nieman is a member of Council of Logistics Management and the Association of Transportation Law, Logistics and Policy. Mr. Nieman has served as an officer or director of six industry associations, including National Tank Truck Carriers, Equipment Interchange Association and the National Rail Intermodal Association (both now combined to be the Intermodal Association of North America), two policy committees of the American Trucking Associations, and Montana Trucking Association.

Mr. Nieman holds a Bachelor of Arts degree in mathematics and economics from Beloit College and a Masters of Business Administration from Stanford University.

VERIFICATION

STATE OF VIRGINIA)
)
CITY OF ALEXANDRIA)

Joseph J. Plaistow, being duly sworn, deposes and says that he is the same Joseph J. Plaistow whose Statement of Qualifications appears in Part IV of the Narrative portion of the Opening Evidence of Otter Tail Power Company in this proceeding; that he is responsible for the portion of Otter Tail Power Company's Rebuttal Evidence in this proceeding related to quantitative market dominance, and specifically BNSF's variable cost of transporting the Complaint traffic (Part II-A), except variable roadway maintenance and joint facilities expense which is being sponsored by Mr. Michael L. Seale; that he knows the content thereof, and that the same are true as stated to the best of his knowledge, information and belief.

Joseph J. Plaistow

Sworn to and subscribed before me
this 27th day of April, 2004.

Notary Public for the State of Virginia

My Commission expires March 31, 2007

VERIFICATION

STATE OF VIRGINIA)
)
CITY OF ALEXANDRIA)

Michael L. Seale, being duly sworn, deposes and says that he is the same Michael L. Seale whose Statement of Qualifications appears in Part IV of the Narrative portion of the Opening Evidence of Otter Tail Power Company in this proceeding; that he is responsible for the portion of Otter Tail Power Company's Rebuttal Evidence in this proceeding related to the calculation of line specific maintenance-of-way costs and joint facilities (Parts II-A-(1) (a) and (b)); that he knows the content thereof, and that the same are true as stated to the best of his knowledge, information and belief.

Michael L. Seale

Sworn to and subscribed before me
this 27th day of April, 2004

Notary Public for the State of Virginia

My Commission expires March 31, 2007

VERIFICATION

STATE OF VIRGINIA)
)
CITY OF ALEXANDRIA)

Thomas D. Crowley, being duly sworn, deposes and says that he is the same Thomas D. Crowley whose Statement of Qualifications appears in Part IV of the Narrative portion of the Opening Evidence of Otter Tail Power Company in this proceeding; that he is responsible for the portion of Otter Tail Power Company's Rebuttal Evidence in this proceeding that relates to the SARR traffic group volumes and revenues (Part III-A-1, 2, 3 and 5); The evidence related to the reasonableness test of the OTRR divisions (Part III-A-4); Evidence related to the route miles of the SARR (Part III-B-1); The design and operation of the string program described in Part III-C-2; The evidence that relates to the non-road property investment (Part III-E); and the DCF analysis and the results of the SAC analysis (Parts III-G and H); that he knows the content thereof, and that the same are true as stated to the best of his knowledge, information and belief.

Thomas D. Crowley

Sworn to and subscribed before me
this 27th day of April, 2004

Notary Public for the State of Virginia

My Commission expires March 31, 2007

VERIFICATION

STATE OF VIRGINIA)
)
CITY OF ALEXANDRIA)

Robert D. Mulholland, being duly sworn, deposes and says that he is the same Robert D. Mulholland whose Statement of Qualifications appears in Part IV of the Narrative portion of the Opening Evidence of Otter Tail Power Company in this proceeding; that he is responsible for the portion of Otter Tail Power Company's Rebuttal Evidence in this proceeding related to the SARR traffic group and revenues (Parts III-A-1, 2, 3 and 5); that he knows the content thereof, and that the same are true as stated to the best of his knowledge, information and belief.

Robert D. Mulholland

Sworn to and subscribed before me
this 27th day of April, 2004

Notary Public for the State of Virginia

My Commission expires March 31, 2007

VERIFICATION

STATE OF ~~VIRGINIA~~ TEXAS)
)
CITY OF ~~ALEXANDRIA~~ PORT ISABEL)

Gary M. Andrew, being duly sworn, deposes and says that he has read the Rebuttal Evidence of Otter Tail Power Company in this proceeding and that he has sponsored, specifically, the information related to the statistical procedures used to calculate divisions of revenues among rail carriers, designated as Rebuttal Evidence Narrative Part III-A-3.c., that he knows the content thereof, and that the same are true as stated to the best of his knowledge, and belief.

Gary M. Andrew

Sworn to and subscribed before me
this 20th day of April, 2004.

Texas

Notary Public for the State of ~~Virginia~~

My Commission expires: 08-05-2006

NICOLE MICHELLE McKEE
Notary Public, State of Texas
My Commission Expires
08-05-2006

Nicole McKee

VERIFICATION

STATE OF MICHIGAN)
)
COUNTY OF ALLEGAN)

David G. Weishaar, being duly sworn, deposes and says that he has read the Rebuttal Evidence of Otter Tail Power Company in this proceeding and that he has sponsored, specifically, the information related to the industry practice of negotiating divisions of revenues among rail carriers, designated as Rebuttal Evidence Narrative Part III-A-3.c., that he knows the content thereof, and that the same are true as stated to the best of his knowledge, and belief.

David G. Weishaar

Sworn to and subscribed before me
this 16 day of April, 2004.

Notary Public for the State of Michigan

My Commission expires:

PATRICIA L. DIEPENHORST
Notary Public, Allegan County, Michigan
My Commission Expires May 16, 2004

VERIFICATION

STATE OF PENNSYLVANIA)
)
CITY OF PHILADELPHIA)

Frank R. Harder, being duly sworn, deposes and says that he has read the Rebuttal Evidence of Otter Tail Power Company in this proceeding and that he has sponsored, specifically, the information related to the calculation of intermodal terminal, interchange and switching costs, designated as Rebuttal Evidence Exhibit III-A-13, that he knows the content thereof, and that the same are true as stated to the best of his knowledge, and belief.

Frank R. Harder

Sworn to and subscribed before me
this 23rd day of April, 2004.

Notary Public for the State of Pennsylvania

My Commission expires: 3/11/08

Sworn to and subscribed before me
this 23rd day of April 2004.

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
JANET COCCIA, Notary Public
City of Philadelphia, Phila. County
My Commission Expires March 11, 2008

VERIFICATION

STATE OF California)
)
CITY OF Lafayette)

Stephen C. Nieman, being duly sworn, deposes and says that he has read the Rebuttal Evidence of Otter Tail Power Company in this proceeding and that he has sponsored, specifically, the information related to the calculation of intermodal terminal, interchange and switching costs, designated as Rebuttal Evidence Exhibit III-A-13, that he knows the content thereof, and that the same are true as stated to the best of his knowledge, and belief.

Stephen C. Nieman

Sworn to and subscribed before me
this 22nd day of April, 2004.

MATTHEW RE
Commission # 1394166
Notary Public - California
Contra Costa County
My Comm. Expires Jan 14, 2007

Notary Public for the State of California

My Commission expires: 1-14-07

VERIFICATION

STATE OF VIRGINIA)
)
CITY OF ALEXANDRIA)

Philip H. Burris, being duly sworn, deposes and says that he is the same Philip H. Burris whose Statement of Qualifications appears in Part IV of the Narrative portion of the Opening Evidence of Otter Tail Power Company in this proceeding; that he is responsible for the portions of Otter Tail Power Company's Rebuttal Evidence in this proceeding related to the reasonableness of OTRR's divisions of revenues (Part III-A-4). In addition Mr. Burris is sponsoring the evidence that relates to operating expense for locomotives, railcars, personnel compensation, loss and damage, insurance, ad valorem taxes, leased facilities and rerouted traffic (Parts III-D-1, 2, 3, 5, 6, 7, 8 and 9). Mr. Burris is also sponsoring the evidence that relates to land and easement valuation and right-of-way determination for the SARR's road property investment (Part III-F-1), except that which relates to the comparable land sales data which was sponsored by Mr. Michael A. Brook in Otter Tail's Opening Evidence; that he knows the content thereof, and that the same are true as stated to the best of his knowledge, information and belief.

Philip H. Burris

Sworn to and subscribed before me
this 27th day of April, 2004

Notary Public for the State of Virginia

My Commission expires March 31, 2007

VERIFICATION

STATE OF VIRGINIA)
)
CITY OF ALEXANDRIA)

Richard H. McDonald, being duly sworn, deposes and says that he is the same Richard H. McDonald whose Statement of Qualifications appears in Part IV of the Narrative portion of the Opening Evidence of Otter Tail Power Company in this proceeding; that he is responsible for the portion of Otter Tail Power Company's Rebuttal Evidence in this proceeding related to the SARR facility plan (Parts III-B-2, 3 and 4), the SARR operating plan (Part III-C), the SARR operating and engineering/mechanical personnel requirements (Parts III-D-3-a and b), the SARR maintenance-of-way costs (Part III-D-4) and all road property investment requirements of the SARR other than those associated with the value of land and easements, earthwork requirements, bridge classification, design and costs and communications system (Parts III-F-2 through 12); that he knows the content thereof, and that the same are true as stated to the best of his knowledge, information and belief.

Richard H. McDonald

Sworn to and subscribed before me
this 21st day of April, 2004

Notary Public for the State of Virginia

My Commission expires March 31, 2007

VERIFICATION

STATE OF VIRGINIA)
)
CITY OF ALEXANDRIA)

Daniel L. Fapp, being duly sworn, deposes and says that he is the same Daniel L. Fapp whose Statement of Qualifications appears in Part IV of the Narrative portion of the Opening Evidence of Otter Tail Power Company in this proceeding; that he is responsible for the portion of Otter Tail Power Company's Rebuttal Evidence in this proceeding related to the design and operation of the string program described in Part III-C; that he knows the content thereof, and that the same are true as stated to the best of his knowledge, information and belief.

Daniel L. Fapp

Sworn to and subscribed before me
this 27th day of April, 2004

Notary Public for the State of Virginia

My Commission expires March 31, 2007

VERIFICATION

STATE OF FLORIDA)
)
COUNTY OF LEE)

Joseph A. Kruzich, being duly sworn, deposes and says that he is the same Joseph A. Kruzich whose Statement of Qualifications appears in Part IV of the Narrative portion of the Opening Evidence of Otter Tail Power Company in this proceeding; that he is responsible for the portion of Otter Tail Power Company=s Rebuttal Evidence in this proceeding related to the SARR General and Administrative Expenses as it relates to Information Technology personnel requirements and Information Technology capital requirements and operating costs contained in section III-D-3-c; that he knows the content thereof, and that the same are true as stated to the best of his knowledge, information and belief.

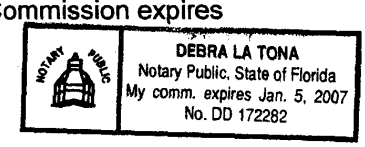
Joseph A. Kruzich

Sworn to and subscribed before me
this 27, day of January, 2004

Debra LaTona

Notary Public for the State of Florida

My Commission expires



VERIFICATION

STATE OF FLORIDA)
)
COUNTY OF PALM BEACH)

Jack F. Conser, being duly sworn, deposes and says that he is the same Jack Conser whose Statement of Qualifications appears in Part IV of the Narrative portion of the Opening Evidence of Otter Tail Power Company in this proceeding; that he is responsible for the portion of Otter Tail Power Company=s Rebuttal Evidence in this proceeding related to the SARR General and Administrative Expenses as it relates to personnel requirements and outsourcing costs contained in section III-D-3-c; that he knows the content thereof, and that the same are true as stated to the best of his knowledge, information and belief.

Jack F. Conser

Sworn to and subscribed before me
this 19th, day of April, 2004

Notary Public for the State of Florida

My Commission expires 2-28-06

Darin J. Gurewitz
Commission # DD096191
Expires Feb. 28, 2006
Bonded Thru
Atlantic Bonding Co., Inc.

VERIFICATION

STATE OF FLORIDA)
)
COUNTY OF PALM BEACH)

Lawrence D. Sugar, being duly sworn, deposes and says that he is the same Lawrence D. Sugar whose Statement of Qualifications appears in Part IV of the Narrative portion of the Opening Evidence of Otter Tail Power Company in this proceeding; that he is responsible for the portion of Otter Tail Power Company=s Rebuttal Evidence in this proceeding related to the SARR General and Administrative Expenses as it relates to personnel requirements and outsourcing costs contained in section III-D-3-c; that he knows the content thereof, and that the same are true as stated to the best of his knowledge, information and belief.

Lawrence D. Sugar

Sworn to and subscribed before me
this 21, day of April, 2004

Notary Public for the State of Florida

My Commission expires 11-8-04

KAREN J. DUTCHER
Notary Public, State of Florida
My comm. expires Nov. 8, 2004
No. CC980746

VERIFICATION

STATE OF VIRGINIA)
)
CITY OF ALEXANDRIA)

Charles A. Stedman, being duly sworn, deposes and says that he is the same Charles A. Stedman whose Statement of Qualifications appears in Part IV of the Narrative portion of the Opening Evidence of Otter Tail Power Company in this proceeding; that he is responsible for the portion of Otter Tail Power Company's Rebuttal Evidence in this proceeding related to the roadbed preparation/earthworks component of the road property investment cost of the SARR exclusive of culverts and roadbed specifications (Part III-F-2); that he knows the content thereof, and that the same are true as stated to the best of his knowledge, information and belief.

Charles A. Stedman

Sworn to and subscribed before me
this 27th day of April, 2004

Notary Public for the State of Virginia

My Commission expires March 31, 2007

VERIFICATION

STATE OF ILLINOIS)
)
COUNTY OF Du Page)

Vinaya Sharma, being duly sworn, deposes and says that he is the same Vinaya Sharma whose Statement of Qualifications appears in Part IV of the Narrative portion of the Opening Evidence of Otter Tail Power Company in this proceeding; that he is responsible for the portion of Otter Tail Power Company's Rebuttal Evidence in this proceeding related to the SARR bridge classification, design and costs (Part III-F-5); that he knows the content thereof, and that the same are true as stated to the best of his knowledge, information and belief.

Vinaya Sharma

Vinaya Sharma

Sworn to and subscribed before me
this 22nd, day of April, 2004

Notary Public for the State of Illinois

"OFFICIAL SEAL"
PAMELA J. BUSCH
NOTARY PUBLIC, STATE OF ILLINOIS
MY COMMISSION EXPIRES 12/7/2004

My Commission expires 12/7/2004

VERIFICATION

STATE OF VIRGINIA)
)
CITY OF ALEXANDRIA)

John A. Mullan, being duly sworn, deposes and says that he is the same John A. Mullan whose Statement of Qualifications appears in Part IV of the Narrative portion of the Opening Evidence of Otter Tail Power Company in this proceeding; that he is responsible for the portion of Otter Tail Power Company's Rebuttal Evidence in this proceeding related to the SARR microwave communications system design and investment cost (Part III-F-6); that he knows the content thereof, and that the same are true as stated to the best of his knowledge, information and belief.

John A. Mullan

Sworn to and subscribed before me
this 27th day of April, 2004

Notary Public for the State of Virginia

My Commission expires March 31, 2007