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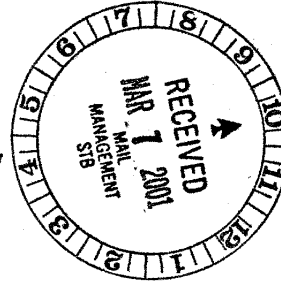
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March 6, 2001

Office of the Secretary
Case Control Unit
STB Finance Docket No. 33407
Surface Transportation Board
1925 K Street, N.W.
Washington, D.C. 20423-0001

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**Re: Comments on Draft Environmental Impact Statement for the
Powder River Basin Expansion Project**

Dear Sir or Madame:

On September 27, 2000, the Surface Transportation Board ("STB") issued the Draft Environmental Impact Statement ("Draft EIS") for the Dakota, Minnesota & Eastern Railroad Corporation's proposed Powder River Basin Expansion Project ("Project"). 65 Fed. Reg. 58146 (Sept. 27, 2000). The comment period for the Draft EIS was originally set to end on Jan. 5, 2001. However, on Dec. 22, 2000, the extended the comment period to March 6, 2001. 65 Fed. Reg. 80987 (Dec. 22, 2000). These comments on the Draft EIS are submitted to the SEA on behalf of the Dakota, Minnesota & Eastern Railroad Corporation ("DM&E"). Please consider these comments and include them in the administrative record for the Project application and Environmental Impact Statement.

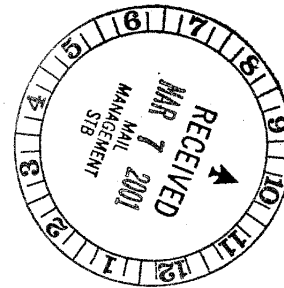
Introduction

Part I of these comments addresses several distinct areas where the Draft EIS should be clarified, expanded, or augmented prior its issuance in final form. Primarily, Part I discusses the substantial economic and social benefits that will result from the Project in an attempt to provide the decision makers a full understanding of the national and regional scope of the Project. This approach is necessary to allow the STB and cooperating agencies to properly analyze all impacts, both adverse and beneficial, in their consideration of the Project.

Part II addresses applicant proposed mitigation measures and their potential to substantially reduce the significance of the Project's impacts on all resource

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areas. A proper consideration of these proposed mitigation measures should result in the conclusion that many impacts will be reduced to a non-significant level.

Part III addresses various alternatives and several specific issues associated with potential bypasses being considered in the Draft EIS. Because of the untested and extraordinary nature of the "bypass" concept – and its fundamental impact on the viability of the Project – the legal problems associated with the bypasses were discussed in a previous filing (included herein as Attachment A).

Ultimately, the Final EIS should recognize that the Project's benefits substantially outweigh any negative impacts, and should support the designation of Alternative C as the preferred alternative.

I. The Final EIS Should Balance the Benefits of the Project Against the Environmental Impacts

NEPA requires an agency to consider all effects an action may have on the human environment: "[w]hen an environmental impact statement is prepared and economic or social and natural or physical environmental effects are interrelated, then the environmental impact statement will discuss all of these effects on the human environment." 40 C.F.R. § 1508.14. Effects¹ include "ecological, ... aesthetic, historic, cultural, *economic*, *social*, or health, whether direct, indirect, or cumulative." 40 C.F.R. § 1508.8(b) (emphasis added).

Due to the regulatory requirements that economic and social effects be considered, courts have concluded that, "NEPA requires agencies to balance a project's economic benefits against that project's environmental effects." *Hughes River Watershed Conservancy v. Johnson*, 165 F.3d 283, 289 (4th Cir. 1999); see also *The Izaak Walton League of America v. Marsh*, 655 F.2d 346, 377 (D.C. Cir. 1981) ("Under Section 101 of NEPA, agencies must consider whether the environmental costs of a project outweigh its economic and technical benefits.") This requirement does not necessitate a "formal cost benefit analysis, but it should reflect that the [agency] has compared for each area the potential benefits ... against the potential adverse environmental consequences." *California v. Block*, 690 F.2d 753, 764 (9th Cir. 1982). The Draft EIS should fully take into account the Project's significant economic benefits and weigh them against any environmental impacts that may occur.

¹ "Effects and impacts as used in these regulations are synonymous." 40 C.F.R. §1508.8(b).

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Although NEPA requires a "hard look" at environmental impacts, and generally concentrates the analysis and discussion on these impacts, NEPA does not require that an agency consider those impacts exclusively. In fact, NEPA does not require that an agency "elevate environmental concerns over other appropriate considerations." *Cape May Greene, Inc. v. Warren*, 698 F.2d 179, 188 (3d Cir. 1983). Nor does NEPA require an agency to "take the action that is most compatible with the environment." *Sierra Club v. Sigler*, 695 F.2d 957, 977 (5th Cir. 1983). Rather, NEPA merely requires a full consideration of all effects, both adverse and beneficial. Therefore, even an action with significant environmental impacts may be approved, especially as here, where the Project benefits clearly outweigh those impacts.

This balancing approach is suggested in NEPA's requirements that all environmental impacts be considered, and that "any adverse effects which cannot be avoided are justified by some other stated consideration of national policy." *Id.* (internal citations omitted). However, "[i]f the agency calculates that the benefits exceed the costs, the agency may approve the project." *West Branch Valley Flood Protection Ass'n v. Stone*, 820 F.Supp. 1, 5 (D.D.C. 1993). The significant economic benefits that will result from the Project, if properly considered, would support an agency decision to approve the Project.

The Draft EIS contains some discussion of the economic benefits of the Project. However, the Draft EIS fails to fully comment on the significance of these benefits or adequately compare them to the environmental impacts of the Project. While the Draft EIS contains a full and detailed discussion of the Project's negative environmental impacts, the failure to consider the benefits frustrates the goals of NEPA: "[i]n order to fully appraise the potential environmental harms of a proposed project, they must be weighed against the economic benefits of that project." *South Louisiana Environmental Council, Inc. v. Sand*, 629 F.2d 1005, 1011 (5th Cir. 1980). Therefore, the Draft EIS should detail the *environmental benefits* of the Project to allow the decision makers to properly balance the Project's positive and negative impact. The DM&E Project is a somewhat unique development project in that it does in fact generate many environmental benefits. Therefore, the Final EIS should provide an analysis incorporating the following national and regional benefits together with the economic data provided by DM&E, as well as data compiled independently by the SEA, and weigh these benefits against the potential environmental impacts of the Project.

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A. Reduced SO₂ Emissions

PRB coal burns cleaner, with lower sulfur dioxide emissions, than coal currently used in most of the East and Midwest. Improving access to low sulfur PRB coal will reduce national sulfur dioxide emissions, thereby reducing acid rain problems experienced in other areas of the country. An analysis dated November 6, 2000, conducted by PA Consulting Group of Washington, D.C., finds that this Project could reduce sulfur dioxide emissions by as much as *418,000 tons per year*. The PA analysis is appended hereto as Attachment B. The Final EIS should specifically consider this factor and include it in the overall impact analysis.

B. Reduced NO_x Emissions

The DM&E route to the PRB mines will be 20 to 30 percent shorter (in some cases over 300 miles shorter) than competing routes, resulting in a reduction in nationwide diesel fuel emissions, and consequently, reduction in NO_x emissions. A detailed study dated December 4, 2000, conducted by GE Transportation Systems concluded that the nation's net NO_x emission reductions resulting from the Project would be approximately *6,871,000 metric tons, annually*. The GE study also quantifies other fuel emission reductions, and is appended to these comments as Attachment C.

Further, the Project will eventually result in the removal of up to 200,000 semi-trucks each year from the nation's highways, versus a potential increase of 300,000 trucks should the Project be denied. Therefore, in addition to the reduction in diesel fuel consumption due to the shorter route, the Project could also have a substantial positive impact by reducing (and/or preventing the increase of) diesel fuel emissions from the equivalent of up to *500,000 truck trips annually*.

C. Decreased Utility Bills

Approximately two-thirds of the energy cost for PRB coal results from the cost of transporting the coal to the utility. The Project will radically improve access for Midwestern power plants to PRB coal. In addition, the Project route is shorter, and therefore less expensive and more rapid, than existing means of transportation. In addition, the Project will increase competition among coal transporters, further decreasing costs. In Minnesota, for example, *a single utility estimated energy cost savings of \$50 million per year* resulting from the Project,

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which is a direct benefit to its customers and energy consumers throughout the state. *See Statement of Robert Kermes, Xcel Energy, before the STB November 15, 2000 Mankato Field Hearings.*

D. Safety

The Project brings with it critically important and very timely safety improvements. The DM&E inherited a severely worn infrastructure in desperate need of repair. Fixing a severely fatigued rail system is one of the fundamental purposes sought to be achieved through the Project, and was a driving factor behind filing for the authority to build the Project over three years ago. Had DM&E been permitted to make the requested improvements, intervening deaths and serious accidents could have been avoided. A very serious train sabotage incident occurred last year which would not have been possible had the upgrades contemplated by the Project been in place. It is one of many examples that illustrate the urgent need for repairs.

The Project would also implement badly needed train crossing safety upgrades, which would reduce the likelihood of accidents at train crossings. In addition, the Project would substantially upgrade the quality of the entire rail infrastructure, including ties, rails, etc, which would greatly reduce the potential for train derailments. Train traffic control through FRA approved signalization would be a huge safety improvement over the current "dark territory" operations. Also, improved highway traffic safety resulting from fewer trucks on the highways should be recognized in the Final EIS (note truck traffic decreases discussed in subsection B of this section). Regulatory delay exacerbates the problem as the rail condition continues to deteriorate at a rate faster than capital resources can maintain. Every year the rail deteriorates at increasing failure rate levels, due primarily to existing rail structure fatigue not being adequately addressed even though additional traffic continues to flow.

E. Train Traffic Reduction Benefits to Localities Outside the Project Area

From a national perspective, the DM&E Project unquestionably will *result in a net reduction of community train traffic impacts*. The Draft EIS only addresses DM&E community train traffic impacts. Further, it analyzes them in a vacuum, without reference or comparison to real world experiences throughout the country. The Final EIS should consider the national benefits of the Project in reducing train traffic congestion problems in more densely populated areas of the

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United States. These benefits are documented in Attachment D ("Train Traffic Impacts") to this filing. It does not require additional studies to verify and recognize the common sense result that every train on the DM&E system is one less on some alternative existing routing. Table A in Attachment D illustrates the smaller population impacts of DM&E routing via the vast majority of competing alternate routes to market for Wyoming PRB coal movements. Table B provides the same information relative to routes for alternative eastern coal.

Table D of Attachment D also underscores the relatively modest train traffic impacts which would be experienced by DM&E cities along the Project's densest traffic segments (western end of DM&E). That table sets forth a small but illustrative sampling of current train traffic levels experienced today by other communities around the country which would experience a relief of train traffic pressure as a result of the Project. It shows current traffic levels in other US communities at over four times what the most optimistic projections for the DM&E Project would produce over a decade from now. In considering mitigation (to the extent STB determines it has the authority to do so) and impacts, the STB should consider both (a) the real world experiences in those cities as to how severe 34 trains per day would be, and (b) the beneficial impact the Project will have for those communities that do in fact experience what could more realistically be viewed as heavy train traffic (e.g., 60 to 160 trains per day). The potential traffic moved via the DM&E Project is not new traffic created by the Project. Rather, the Project is in response to existing market demand for the energy and the transportation which makes it possible. In short, if the traffic doesn't move via DM&E, it will move via another (already overly congested) route. A significant Project benefit will be to reduce pressure along those more densely populated alternative route corridors. That should be noted in the Final EIS.

It is worth noting that most of the significant traffic problems and resulting complaints STB today receives from some of the communities listed in Table D did not surface until significantly exceeding the 60-plus TPD level. Most of the controversy and complaints surrounding the present Project are based on perception rather than reality based experience. In this case, STB does have the experience of the other communities around the country, and significant problems or complaints have not developed from communities in the 30 to 35 TPD traffic range. History demonstrates that the perceived problems raised by a small minority of DM&E communities are not likely to materialize. This perception of impact over a decade from now should not negate the opportunity that those

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communities who currently experience over 100 TPD to both prevent future stress to those systems and provide some relief in the near term (potentially as early as three years from now).

Along these same lines, timing of impacts should also be recognized in the Final EIS. Although full traffic impacts are at least a decade out (even under the most aggressive scenario it will be 3 years construction plus 6 or 7 years of marketing efforts), relief for other communities will be experienced much sooner. Further, in the decade between now and full operations, the knowledge gained from experience in other communities, and technological and other improvements will produce mitigation opportunities not possible today.

In summary, while the Project may increase train traffic in those communities along the existing DM&E line, it will also decrease train traffic in hundreds of communities located on alternative railroad routes. For every train traversing a DM&E community, it is one less travelling through communities along an alternative route. Many of these alternative routes pass through much more densely populated areas, which currently suffer greater safety, noise, and other problems than would be caused by the Project. These impacts would be reduced in those areas to a greater extent than they would increase in the Project area. The Final EIS should take these factors into account in its final impact analysis. The Project will result in a net benefit relative to train traffic impacts nationally.

F. Archeological and Paleontological Recourses

The Draft EIS addresses negative, unmitigated impacts to archeological and paleontological resources. In fact, through the mitigation proposed to date, science and education in these areas would be advanced significantly as a result of the Project. Based on the field surveys conducted to date, scientific knowledge in this area already has been advanced. This knowledge would be advanced by further research and preservation proposed in the mitigation, which ultimately would make the Project a benefit to scientific advancement and preservation. This is especially apparent when decision makers consider the fact that the recovery contemplated by the mitigation is exactly the kind of research and collection activity encouraged by Federal law as an alternative to losing these resources through erosion, theft or other means.

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II. The Final EIS Should Analyze the Effect of Mitigation Measures to Avoid or Reduce the Project's Impacts on the Environment

As part of the impact analysis, an agency must take into account all mitigation measures imposed, mandated or negotiated with respect to a project, as these measures will directly affect the significance of an impact. Understandably, the Draft EIS does not fully take into account the mitigation measures to be implemented by DM&E.² This is due in part to the fact that until the Draft EIS was published, DM&E did not have a complete assessment of the Project impacts from which to negotiate mitigation measures. However, the Draft EIS does not appear to fully evaluate the effect on the Project's impacts on any of the proposed mitigation measures contained in the Draft EIS. In the Final EIS, all mitigation measures proposed, mandated, or negotiated by the parties involved should be considered, and the significance determination should consider the potential for all mitigation measures to reduce or eliminate adverse impacts.

NEPA requires a complete discussion of possible mitigation measures that would avoid any adverse effects of a proposed action. The Supreme Court held that this discussion is required to ensure that an agency has taken the requisite "hard look" at the environmental consequences of an action, and to protect the action-forcing function of NEPA. *See Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350-53 (1989). In addition to promoting the action-forcing function of NEPA, proper mitigation measures may also reduce potential impacts to a non-significant level and relieve an agency of the duty to prepare an EIS in the first place, or in the alternative, simplify an agency's ultimate decision once an EIS is prepared.

An agency may base a finding of no significant impact on the effect of mitigation measures. *See Friends of the Payette v. Horseshoe Bend Hydroelectric Co.*, 988 F.2d 989, 993 (9th Cir. 1993); *Roanoke River Basin Ass'n v. Hudson*, 940 F.2d 58, 62 (4th Cir. 1991); *see also Audubon Society of Central Arkansas v. Dailey*, 977 F.2d 428, 435 (8th Cir. 1992); *City of New York v. Interstate Commerce Comm'n*, 4 F.3d 181, 186 (2d Cir. 1993) (holding that an agency may

² The Draft EIS does propose a significant number of mitigation measures for the Project. *See* Draft EIS, Chapter 7 – SEA's Proposed Environmental Mitigation. DM&E prepared an analysis of the potential effects of the proposed mitigation on train operations, and suggested certain changes and clarifications. That analysis is attached to this document as Attachment E.

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base a finding of no significant impact on mitigation measures to be undertaken by a third party).

Once an agency decides to complete an EIS, mitigation measures may allow that agency to conclude that potentially significant impacts have been reduced to a non-significant level. *City of Carmel-by-the-Sea v. Department of Transportation*, 123 F.3d 1142 (9th Cir. 1997). The mitigation measures need not eliminate adverse effects: "so long as significant measures are undertaken to 'mitigate the project's effects', they need not completely compensate for adverse environmental impacts." *Friends of Endangered Species, Inc. v. Jantzen*, 760 F.2d 976, 987 (9th Cir. 1985).

Mitigation measures may include the following actions:

- (a) Avoiding the impact altogether by not taking a certain action or parts of an action.
- (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- (c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
- (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- (e) Compensating for the impact by replacing or providing substitute resources or environments.

40 C.F.R. § 1508.20.

The failure of the Draft EIS to fully evaluate the effect of mitigation measures tends to vastly overstate the Project's potential adverse impacts. The following discussion will describe the mitigation measures associated with the Project. These include measures imposed by the Draft EIS, those voluntarily agreed to by DM&E, and those under negotiation with various stakeholders. These measures have the potential to either completely avoid or significantly reduce many, if not all, of the most significant adverse impacts that may result from the Project. The Final EIS should incorporate these and any additional mitigation measures, analyze their potential to reduce or eliminate the Project's potential adverse effects, and reach its final conclusion as to the significance of the Project's impacts based on that analysis.

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A. Wetlands

The Draft EIS indicates that the Project will have potentially significant impacts on wetland resources. That would be the case without mitigation. But with mitigation, particularly in light of the low quality of wetlands impacted for most of the Project area, mitigation can create better and more wetlands. The Draft EIS wetland analysis is based on an intentionally exaggerated footprint to encompass the entire right-of-way, only a portion of which will be impacted following final design. Nevertheless, the Draft EIS indicates that the proposed construction in Wyoming and western South Dakota could result in the loss of approximately 62.2 acres of wetlands in Alternative C. Draft EIS at 4.4-30. In addition, the Draft EIS indicates that impacts to wetlands could continue after construction due to improper handling and use of contaminants such as fuel or lubricants, or in the event of a derailment. *Id.* The Final EIS should recognize that the potential for wetland impacts from derailments already exist on the DM&E today, and will be much less with a new infrastructure.

The Draft EIS indicates that reconstruction in Minnesota will result in the loss of approximately 187.8 acres of wetlands (though again, as with all wetland evaluations, the footprint used purposely and conservatively overstates the impacts). Table 5.1-6. In eastern South Dakota, reconstruction will result in the loss of 132.9 acres. Table 5.1-7. In addition, the Draft EIS suggests that wetlands adjacent to the rail bed may be drained or filled due to the potential for adjacent wet areas to destabilize the rail bed, and that wetlands adjacent to the right-of-way may be affected by increased sedimentation and changes in drainage. These numbers are based upon National Wetland Inventory Mapping to identify wetland impacts. The 404 Permit application used aerial photography and field delineations to determine Project impacts.

DM&E has agreed to a two-step plan to substantially reduce the magnitude and severity of these wetland impacts. The plan consists of avoiding impacts through the use of Best Management Practices ("BMPs") and alignment selection followed by compensation for unavoidable impacts.

The Section 404 Permit Application submitted by the DM&E to the U. S. Army Corps of Engineers ("Corps") in September 2000 contains a detailed, thorough discussion of the painstaking effort spent by DM&E to minimize and avoid adverse impacts to wetlands in the development of alternatives. The Final EIS should fully discuss and consider these mitigation measures in assessing the level of Project impacts on wetlands.

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BMPs are reasonable and accepted construction practices designed to protect the environment while enabling progression of the work. The BMPs written in Volume I of the 404 Permit Application provide for the installation of measures or performance of work to control erosion, minimize delivery of sediment and other pollutants to water and air, protect wildlife, establish emergency response plans for unplanned events, and provide a safe working environment.

The BMPs are organized into two parts. The first part is written as a generic plan to cover a large percentage of the cases expected during the progression of construction effort. The second part of the BMPs was written to describe practices to be employed in three specific cases: trout streams of eastern Minnesota, Topeka Shiner streams in western Minnesota and eastern South Dakota, and the Cheyenne River in western South Dakota. The BMPs will continue to evolve as the agency review process moves forward.

DM&E is also working with federal, state, and local agencies from Minnesota, South Dakota, and Wyoming in developing mitigation opportunities. The mitigation concept will replace the functions and values of the wetlands impacted by the Project. DM&E is committed to mitigate for all impacted wetlands that cannot be avoided or minimized.

DM&E is also working with the Minnesota Board of Water and Soil Resources ("BWSR") and Local Government Units ("LGUs") that administer the Minnesota Wetland Conservation Act ("WCA") to determine appropriate mitigation for wetlands in Minnesota impacted by the Project. The wetland mitigation sites will be located according to MN Rules Chapter 8420.0540. Due to engineering requirements, on-site mitigation is not suitable for the Project, and restoration sites will be identified at the watershed or county level. If sites are not available, then the adjacent county or watershed will be considered. It is anticipated that there will be approximately 10 mitigation sites in Minnesota, one in each county or watershed along the DM&E rail line.

Through the proposed plan of applying BMPs to minimize wetland impacts and the development of a mitigation concept to replace lost function and values of unavoidable impacted wetlands, no net loss of wetland functions and values will occur as a result of the Project.

Since the mitigation measures to be employed by DM&E will result in a net gain of wetland habitat, the Final EIS should indicate that the Project will not

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have a significant impact on wetland resources. *See Friends of the Payette v. Horseshoe Bend Hydroelectric Co.*, 988 F.2d 989 (9th Cir. 1993) (holding that replacement of affected wetlands justified finding by the Corps that the project in question would not have a significant impact on wetland resources).

B. Air Quality

Section ES.7, entitled "Summary of Significant Environmental Impacts," states in the Executive Summary that the Powder River Basin ("PRB") Expansion Project would result in significant long-term adverse environmental impact to air quality. The last paragraph on page ES-23 states, "under any of the Action Alternatives, mitigation measures could be imposed to minimize, reduce, or eliminate some of the potential environmental impacts." Section ES.7 should have listed the items, including air quality, as having *potentially* significant adverse environmental impacts.

Many levels of analysis are required in determining whether the Project will have a potential significant impact to air quality. As presented in Appendix E of the Draft EIS (Air Quality), the potential for adverse impacts to air quality are analyzed for both near-source and far-field impacts.

The near-source analysis includes a comparison of the Project emissions against the National and Wyoming Ambient Air Quality Standards (NAAQS and WAAQS) in close proximity to the Project. These comparisons may be useful in estimating impacts. However, because nearly all of the Project's emissions come from the engines, which are mobile sources, neither the NAAQS nor the WAAQS apply directly to the Project. The estimated near-source concentration impacts due to the Project alone are always less than 5 percent of the NAAQS and WAAQS. Another level of analysis includes comparison of the Project emissions with PSD Class II increments. Again, these comparisons may be useful, but the Project is not directly subject to regulation under the Prevention of Significant Deterioration ("PSD") program. The contribution of Project sources is always less than 7 percent, and usually less than 1 percent, of the PSD Class II increments. Although no significance criteria were identified in the Draft EIS, predicted impacts of only small percentages of the establish standards cannot be considered potentially significant impacts.

The far-field analysis compares Project emissions at far-field receptors against the NAAQS and WAAQS, and against PSD Class I and Class II increments. As is stated on page 5-3 of Appendix E, "the Project and Other New

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Sources in the region are estimated to not come close to exceeding any PSD Class I or II increments or violating any ambient standards at the sensitive Class I and II receptor areas in the region." Again, although no significance criteria were identified, the predicted impacts are only small percentages of the established standards, and cannot be considered potentially significant adverse impacts.

The far-field analysis also considers impacts to high mountain lakes from acid deposition. Although there are no regulatory standards, the U.S. Forest Service has indicated the agency's current threshold of concern to be a change of 10 percent or more. Modeling results for the Project and for cumulative impact (Project plus other new sources) are all under 2 percent, well below the 10 percent threshold of concern. Finally, far-field analysis looks at visibility impairment to Class I and Class II areas. Again, no significance criteria were identified in the Draft EIS, nor have any been established by any agency involved in regulating visibility in Class I or Class II areas. The results, presented in Appendix E, predict the number of days the Project visibility impact may exceed 5 percent and 10 percent change in extinction over background thresholds. As stated in Appendix E, "these thresholds are neither standards nor regulatory limits. Rather, they are used to alert the affected land managers that potential adverse visibility impacts may exist and the land managers may wish to examine the magnitude, duration, frequency, and source of the impacts in more detail in order to make a determination as to whether the impacts are adverse."

The results provided in Appendix E suggest there may be the *potential* for adverse impacts to visibility in Class I areas once the Project achieves relatively high operating levels. This is, however, before any mitigation measures to reduce impacts have been implemented. As requested in the mitigation section of the Draft EIS, DM&E is working to identify appropriate mitigation measures. See Attachment F.

Finally, the Final EIS should recognize the positive air quality benefits of the Project on a national scale, including an overall reduction in SO₂ and NO_x, as noted above.

In summary, the air quality analyses presented in the Draft EIS predict no significant adverse impacts, with the possible exception of impacts on visibility. Notably, because no significance criteria have been identified in either the Draft EIS or applicable regulations, it is impossible to say that the predicted impacts are significant. However, even assuming there is a potential for significant adverse impacts on visibility, that potential disappears if appropriate mitigation measures

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are implemented. Such measures are being developed to further reduce or eliminate the potential for significant adverse impacts to visibility or any other air related resource.

C. Land Use

The Project will require the permanent conversion of existing land uses to rail line right-of-way. While land use conversion may have substantial site-specific impacts, the Draft EIS recognizes that these impacts to the overall landscape will be "relatively small." Draft EIS at 4.4-11. However, DM&E recognizes the importance of the land use conversion impacts to local landowners and users, and is committed to reducing those impacts to the greatest extent possible. The following discussion will describe the mitigation measures that will be employed, and the potential for each to avoid or reduce the significance of those locally adverse impacts. The Final EIS should be revised to take into account the mitigation measures described herein, and should consider the regional and national context of the Project in its determination of the Project's impacts on the overall environment.

1. Agricultural Uses

Although it is clear that Project construction will have some impact on agricultural uses in the area, DM&E will be capable of substantially mitigating many of these impacts. For example, the Draft EIS indicates that the Project will adversely affect grazing by disrupting the movement of cattle, dividing allotments, and potentially preventing access to water, available forage, and rangeland improvements. However, where these impacts are of concern, the Project will implement several types of mitigation measures that will substantially eliminate or reduce the significance of these impacts. These measures are primarily in the form of individual landowner compensation and mitigation agreements with affected landowners, who willingly and voluntarily enter into negotiations with the DM&E.

The landowner compensation and mitigation agreements are designed to resolve all issues presented by the construction of the DM&E expansion across private lands, and to compensate landowners for any damages or reduction in land values resulting from such construction. The agreements allow the landowners to negotiate fencing arrangements, livestock underpasses, private at-grade crossings, as well as provisions for compensation for any damages caused during operation of the DM&E line. Once any agreement is finalized, it is binding on DM&E.

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However, should circumstances change, the landowner is free to terminate, or seek a revision of, the agreement at anytime for any or no reason. In this way, the affected landowners' right to receive the maximum mitigation and compensation provided for by law is not jeopardized by a private agreement intended to significantly exceed maximum legal requirements.

DM&E has attempted to negotiate with all affected landowners, and has worked with a Landowner Advisory Committee, composed of affected landowners, to protect the interests of all affected landowners. The Final EIS should recognize and discuss the landowner mitigation and compensation agreements, and recognize the potential for these agreements to substantially reduce the impacts of construction and operation to private lands.

In considering impacts to agricultural lands, the Draft EIS also fails to recognize the *benefits* that the Project will provide agricultural concerns throughout the Project area. These benefits include increased access to non-local markets, as well as less expensive transportation costs. The increased rail traffic and competition resulting from the Project could significantly reduce transportation costs for many agricultural users. This would allow agricultural users to make more effective and efficient use of their current resources, and would serve to mitigate any loss of resources resulting from the Project.

Furthermore, the benefits to agricultural users will extend well into the future, beyond the period in which construction will adversely impact their uses. As operators of other rail lines or transportation systems adjust their practices to compete with the Project, the benefits will only increase. For these reasons, the Final EIS should take into account all impacts, both positive and negative, and should fully evaluate and compare these impacts in its determination of the significance of the Project's impacts to agricultural resources.

Finally, the reconstruction of the DM&E line in South Dakota and Minnesota is not anticipated to have any significant adverse impacts on agricultural uses. Draft EIS 3.2-6 & 7, 4.3-6 & 7. As approximately two-thirds of the Project consists of reconstruction of the existing line, the Draft EIS recognizes that a very substantial portion of the Project will have no significant adverse impacts on agricultural uses. The Final EIS should take this fact into consideration in the determination of the significance of the Project's impacts.

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2. Residential

The Draft EIS contains a substantial discussion of the Project's potential impacts to residential areas, ultimately determining that the significance of these impacts is unknown. The Draft EIS recognizes that reconstruction would pass adjacent to only one mile of residential land in South Dakota and 10.8 miles in Minnesota, out of approximately 600 miles of total reconstruction. The new construction will pass adjacent to 1.3 miles of residential land, out of approximately 280 total miles. While it is true the Project may impact the residences located in these specific areas, it will also result in increased jobs and income to local economies. These economic benefits are substantial. *See* Draft EIS Appendix M. The Final EIS should fully consider the Project's benefits to residential areas prior to making a determination of significance.

3. Fish & Wildlife Service Lands

The Alternative C Central Staging and Marshaling Yard ("Central Yard") could occupy roughly 606.1 acres, beginning approximately 2 miles west of Huron, South Dakota and ending approximately 4 miles east of Wolsey, South Dakota. Draft EIS at 4.10-20. The Central Yard would be five miles in length and approximately 1000 feet wide. *Id.* This site is DM&E's preferred site for the Central Yard, and is the safest of all alternatives considered.

Although not discussed directly in the Draft EIS, the proposed Central Yard would impact wetland and grassland easements ("conservation easements") managed by the U.S. Fish & Wildlife Service ("FWS") as a part of the Huron Wetland Management District. The District is managed as a part of the National Wildlife Refuge System. These conservation easements are managed primarily for their wetland and other habitat values, to support migratory bird conservation activities. Fee title to the lands covered by the conservation easements (the "base lands") is held by private landowners, who generally manage the encumbered properties for agricultural purposes.

The construction of the Central Yard would result in the conversion of approximately 55 acres of conservation easements to railroad uses. That conversion would likely result in the permanent loss of the wetland functions and values of the easement acreage converted to railroad purposes. Additional impacts may be caused to the primary use of the base lands. To effectuate such a conversion, DM&E would be required to seek authorization from the FWS in the form of a special use permit, or to acquire the lands in question by land exchange

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with FWS. To the extent base lands are impacted, DM&E would also be required to obtain permission to make railroad use of the properties from the owners of the base lands.

FWS regulations applicable to the issuance of special use permits for activities involving easement areas require the agency to determine that the desired activity is compatible with the purposes for which the easement was acquired, and require the landowner's consent. FWS may consider mitigation measures within the easement area and permit stipulations in making the compatibility determination. In addition, FWS has statutory authority to exchange easement interests for fee title or other appropriate easements.

The construction of the Central Yard would impact federal conservation easements and their use for wildlife conservation purposes. However, because of the necessity of obtaining FWS authorization to use such lands, any permanent loss of habitat and other conservation values associated with the conservation easements impacted by the Central Yard would be mitigated and offset through mitigation, permit stipulation, the exchange of wetlands of equal or greater resource values, or a combination of such measures.

The Final EIS should provide a discussion and analysis of the current habitat and other values of the FWS conservation easements in question and the impacts that would be caused by the proposed construction of the Central Yard, and should address significance of such impacts on FWS operation of the Huron Wetland Management District. Furthermore, the Final EIS should consider and discuss the effect and consequence of mitigating such impacts through special use permitting activities or by land exchange, including the FWS' ability to fully replace the function and values of those conservation easement lands lost to the Central Yard. Lastly, the Final EIS should likewise address the impacts of such construction to the owners of the base lands and their activities in connection therewith.

The Final EIS should also recognize that the FWS management of the conservation easement lands constitutes a federal land use, and the discussion of the impacts to these easements should be included in the federal land use section of the EIS to facilitate public review. The Final EIS should also undertake a detailed discussion and analysis of the environmental impacts of the conversion of these easements to railroad uses. Furthermore, it should analyze the effect that mitigation through land exchanges or other mechanisms would have on those adverse impacts. Ultimately, the Final EIS should conclude that the construction

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of the Central Yard would not have any significant impacts to this federal land use and habitat values due to the replacement of all lost or converted wetlands by wetlands of equal or greater resource values.

4. Bureau of Land Management Lands

The Project crosses approximately 1.5 miles of public lands administered by the Newcastle Field Office of the Bureau of Land Management ("BLM"). The Newcastle RMP contemplates that rights-of-way will be authorized on BLM-administered public lands: "[t]he BLM-administered lands in the planning area are open to consideration of rights-of-way location. Proposals will be addressed on a case-by-case basis with emphasis on avoiding land use or resource conflicts and sensitive areas." Newcastle RMP at 10. Further, the Newcastle RMP allows the operation of general public land laws on the BLM-administered public lands, unless such lands are otherwise withdrawn or specially classified: "[t]he BLM-administered public lands in the planning area are open to operation of the public land laws." Newcastle RMP at 10.

The public land laws contemplated by the Newcastle RMP include the Federal Land Policy & Management Act ("FLPMA"), which allows the authorization of rights-of-way for railroads or "other necessary transportation or other systems or facilities which are in the public interest and which require rights-of-way over, upon, under, or through such lands." 43 U.S.C. § 1761(a)(7).

The lands in question are not subject to any withdrawals or classifications. Newcastle RMP, Map 3. Neither are the lands in question subject to increased regulatory scrutiny based on the presence of any endangered or threatened species, sage grouse leks, sharptail grouse dancing grounds, or raptor nesting grounds. Newcastle RMP, Map 7. These lands are currently within proposed visual resource management Class III areas. Class III areas are those areas "where the objective is to design proposed alterations so as to partially retain the existing character of the landscape." Newcastle RMP at 38. Finally, any "[s]urface-disturbing and disruptive activities associated with all types of right-of-way construction and maintenance will be subject to appropriate mitigation measures determined through, but not limited to, use of the Wyoming BLM Mitigation Guidelines." Newcastle RMP at 10.

The Newcastle RMP specifically recognizes that future right-of-way authorizations will be "based on the RMP decisions and completion of site-

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specific environmental analysis." Newcastle RMP at 7. The Project right-of-way over BLM lands will comply with all requirements of the Newcastle RMP, including mitigation, and will be thoroughly analyzed in the Project EIS. For all the reasons discussed herein, the Final EIS should specifically recognize that the Project is consistent with the Newcastle RMP, and will comply with all its guidelines and regulatory requirements.

The Project also crosses approximately 3.4 miles of public lands administered by the BLM in the South Dakota Resource Area. The Record of Decision and Final Resource Management Plan EIS for the South Dakota Resource Area both recognize "[r]ight-of-way applications will continue to be approved on a case-by-case basis. South Dakota Final EIS at 11; Record of Decision at 6. Railroad rights-of-way are clearly contemplated by FLPMA, and therefore the Final EIS should expressly determine that the Project is consistent with the South Dakota RMP. See 43 U.S.C. § 1761(a).

The Project crosses several areas of special consideration on BLM-administered lands in South Dakota. These include mountain plover monitoring sites, and Probable Fossil Yield Classification ("PFYC") Class 3 and 5 monitoring sites. The Project further passes near a single potential sage grouse lek/nesting area. DM&E acknowledges that these sites require special attention. The Project will comply with all applicable laws regarding the use of the public lands, and will mitigate to the fullest extent practicable any potentially adverse impacts that might occur on BLM-administered lands crossed by the Project. For these reasons, the Final EIS should recognize that the Project is consistent with the South Dakota Resource Area Resource Management Plan, and will comply with the provisions of the RMP and any necessary mitigation.

Finally, the Project's consistency with the RMP's for all BLM-administered public lands to be crossed is discussed in the *Resource Technical Reports and Impact Assessment for the Proposed Dakota, Minnesota & Eastern Railroad* ("Technical Report") found at Appendix L in the Draft EIS. Draft EIS, Appendix L at 1-5. The Final EIS should specifically recognize that the Technical Report analyzes and discusses the impacts to BLM-administered public lands as well as Forest Service lands, and that the Project is consistent with the RMPs for those lands.

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5. Bureau of Reclamation Lands

Impacts to Bureau of Reclamation ("Bureau") lands will result from construction of the WG Divide Alternative, which crosses lands managed by the Angostura Irrigation District. These impacts will consist of potential damage to the District's existing irrigation facilities, as well as potential economic damages to the District resulting from lands that will be removed from irrigation due to construction of the Project. Without mitigation, the impacts to the District would be very substantial. However, potential impacts to the Irrigation District can be mitigated to insignificant levels. This could occur through mitigation ordered by the STB or pursuant to a voluntary memorandum of agreement ("MOA") proposed to be negotiated between the DM&E and the Bureau.

Attached is a draft MOA which could be incorporated in the Final EIS. The MOA provides that DM&E will design and construct the Project so as not to adversely affect the operations of the district, as they exist prior to construction of the Project. Any District facilities that are damaged during construction will be restored to the condition that existed immediately prior to construction.

In addition, DM&E will purchase water rights and pay the Bureau all fees which the Bureau would have otherwise received for water rights relating to lands directly removed from production by the Project right-of-way, and for lands that are no longer practicably irrigable due to the location of the right-of-way. Any impacts to private landowners in the District will be mitigated pursuant to individual agreements with those landowners. A copy of the draft MOA is attached hereto as Attachment G.

The Final EIS should therefore recognize and fully discuss the MOA's potential to mitigate any potentially adverse impacts to the Angostura Irrigation District, and should conclude that the Project will not have a significant impact on the District.

D. Soils

Soil impacts from new construction will generally consist of erosion, loss of topsoil, loss of farmland, and the introduction of noxious weeds. The Draft EIS recognizes that with proper mitigation measures, the impacts to most soil groups will be short-term, limited to the period of construction and re-vegetation. In its Section 404 application, DM&E outlined the mitigation measures it plans to implement to protect soil resources. These include the installation of sediment

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basins, sediment traps, and barriers to isolate the effects of construction and minimize impacts. In addition, DM&E will revegetate all disturbed areas immediately after construction, or as soon as is practical, to avoid water quality degradation. Furthermore, DM&E will perform construction work during periods of low or no flow to reduce potential impacts. For an additional description of BMPs to be integrated into the Project, please see the Section 404 permit application, Volume 1.

With respect to reconstruction of the existing line, the Draft EIS indicates that the Project will have no significant adverse impacts. However, DM&E will implement those BMPs discussed above in this portion of the Project as well, further mitigating the Project's overall impacts to the soil resource.

Due to the mitigation measures that DM&E will implement in both the new construction and reconstruction, the adverse impacts to soil resources will be substantially reduced. The Final EIS should analyze these mitigation measures and reconsider the impacts to soil resources based on the measures to be implemented. In addition, the Final EIS should evaluate the impacts to soil throughout the entire Project, including those impacts from reconstruction that the Draft EIS indicated were insignificant, in making its overall determination of the Project's impacts.

E. Vegetation

The implementation of mitigation measures will cause there to be no significant impact to common vegetative communities in the Project area, including grassland, coniferous forests, and sagebrush shrublands. Draft EIS at 6-20. However, the Project will impact a small amount of deciduous woodlands, approximately 33.9 acres for Alternative C. *Id.* at 4.4-83. As deciduous woodlands are uncommon in the Project area, the Draft EIS concluded that the Project would have a significant impact to vegetation based on the impact to deciduous woodlands alone. The Draft EIS reached this conclusion based in part on the potential for mitigation measures to be unsuccessful.

DM&E has already made considerable changes to the Project to avoid impacts to important riparian habitats. Both the WG Divide alternative to the Hay Canyon segment, and the Phiney Flat alternative to the Spring Creek segment were designed to avoid riparian areas and the valuable deciduous habitat generally found there. The Final EIS should take into consideration these alternatives volunteered by DM&E in the significance determination.

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Although not specified in the Draft EIS, SDGFP has a policy of no net loss of Resource Category 1 wildlife habitats that include woody draws, native grasslands, sagebrush-grasslands, riparian woodlands, and wetlands. *See* Draft EIS, Appendix L at 4-25. Woody draws and riparian woodlands in South Dakota are included within the broad category of deciduous woodlands that was analyzed in the Draft EIS. The Draft EIS declared the impacts from Alternatives B and C to these woody draws and riparian woodlands to be significant in Table ES-1. Draft EIS at ES-21. In South Dakota, 0.7 mile of Alternative C is estimated to affect 33.9 acres of deciduous woodland. Draft EIS at 4.4-83. While the Draft EIS correctly recognizes that regeneration of woody deciduous vegetation may take considerable time to become comparable to pre-construction conditions, and states that such loss would be an apparently significant impact, STB also proposed that the applicant develop a mitigation plan, in consultation with the USFWS and SDGFP to compensate for the loss of trees, shrubs, and other woody vegetation. *See* Draft EIS at 7-23, Mitigation Item 74. Several strategies are possible including planting deciduous species on sites where they were but have been removed and protecting sites where livestock grazing has limited natural regeneration of woody species. Such mitigation practices would substantially improve deciduous woodland habitats for wildlife. Presumably, any mitigation plan developed cooperatively would be satisfactory to both agencies and avoid the "no net loss" of Category 1 habitats. Consequently, with the application of adequate mitigation, there would be no significant impact to deciduous woodland vegetation.

F. Cultural Resources

Both the new construction and reconstruction of existing line have the potential to disturb cultural resource sites. However, the National Historic Preservation Act ("NHPA") governs cultural resource concerns. DM&E has worked diligently to mitigate these impacts through cooperation with the Advisory Council on Historic Preservation ("ACHP"), as evidenced by the Programmatic Agreement and Identification Plan established with the ACHP and other interested parties. The Draft EIS recognizes that these agreements "would provide acceptable measures to address potential impacts to cultural resources." Draft EIS at 6-21. Furthermore, DM&E has entered into a Memorandum of Agreement with involved and interested Indian tribes and the STB to further ensure meaningful involvement of those tribes in the treatment of cultural resource sites. Draft EIS, Appendix I.

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The agreements discussed in the preceding paragraph will protect cultural resource sites encountered on private lands, as well as public lands, which would not generally occur. Many of these sites on private lands would otherwise go unnoticed and unprotected. Although the private landowner would retain possession of any artifacts found on private land, such discovery would still increase scientific and public knowledge about the cultural history of the Project area. The Final EIS should recognize and discuss these potential benefits to cultural resources that will result from the Project.

While the existence of a statutory framework that protects cultural resources does not mandate a finding of no significant impact to cultural resources, it does serve to substantially mitigate the potential impacts. The Final EIS should be revised to emphasize the agreements entered into by the interested parties pursuant to the NHPA, and the potential of those agreements to reduce considerably the impacts to cultural resources. The Final EIS should also discuss the beneficial effects the Project will have on cultural resources.

G. Aesthetics

Reconstruction and operation of the existing line will not have any significant impacts on aesthetics in Minnesota. Draft EIS at 3.2-119 & 120. Nor should the reconstruction or operation of the existing line in South Dakota have any significant impacts. Draft EIS at 4.3-119 & 120. The determination that the Project will have significant impacts to aesthetics is based entirely on the impacts of new construction in a few, very specific locations.

The Draft EIS suggests that the only areas where significant visual impacts will occur are those areas with a visual quality objective ("VQO") of partial retention. Draft EIS at 4.4-148. However, the Project crosses only 5.1 miles with a VQO of partial retention. Therefore, significant visual impacts will occur on only a very small portion of the entire Project.

The Final EIS should be revised to accurately reflect the nature and extent of the visual impacts. While the Project may have significant impacts to aesthetics in very localized areas, more than 99% of the Project will not have significant impacts. The determination of significance requires the consideration of these impacts in the context of the entire Project. Therefore, the Final EIS should recognize that the Project's significant impacts to aesthetics will be extremely localized, and that nearly all of the Project will otherwise not have

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significant impacts to aesthetics, and take this into account in the determination of the significance of the Project's impacts.

H. Noise and Vibration

The discussion of potential noise and vibration impacts resulting from the Project is overly conservative and therefore overstates the significance of the impacts in this area. For example, the noise analysis included in the Draft EIS fails to account for shielding, resulting in over-predictions of the number of impacted noise receptors. The shielding methodology provided by the Federal Highway Administration is easily applied and verified using aerial photographs and field reconnaissance.

In addition, the vibration report in Appendix F is inconsistent with Federal Transit Authority methodology. That methodology explains that when vibrations waves initially encounter a building or other structure, some energy is lost at the soil/structure interface. This phenomenon is known as coupling loss. Unfortunately, the report in Appendix F fails to take coupling loss into account, resulting again in an over-prediction of the impact of vibration to structures near the rail line.

The Final EIS should clearly indicate that the analysis of noise and vibration impacts presents a worst-case scenario, and that the actual impacts from the Project are unlikely to reach that level of significance.

III. Impacts Considered Significant Which May Not Be Significant

The Draft EIS summary concludes that several of the Project's impacts will be significant, while the Draft EIS detailed discussion of these impacts suggests that this may not be the case. In each of these cases, the STB should reconsider the Project's potential impacts to specific resource areas and conclude that those impacts are either non-significant as currently evaluated, or will become non-significant through the implementation of simple mitigation measures.

A. Water Resources

1. Surface Water

The Project's impacts to surface water may include:

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- Construction runoff causing sedimentation in Project area waterways.
- Disturbance of the stream corridor, resulting in erosion and sedimentation degrading water quality.
- Stream channel modifications resulting in changes to waterway hydrology.
- Impairment or destruction of ground water supplies by construction of the alternatives, or contamination if spills of fuel or other hazardous materials occur and enter the aquifer.

Draft EIS at 4.4-26.

While these impacts, if they actually occur, may constitute significant impacts, the Draft EIS suggests that the Project will not generally cause these impacts. Therefore, the conclusion that the Project's impacts to water resources are significant is inconsistent and potentially erroneous, and should be reconsidered.

The Draft EIS discusses the potential for the installation of new bridges and culverts to increase erosion into surface waters and disturb bottom sediments. Draft EIS at 4.4-26. Increased sediment in the water may result from the disruption of stream-side vegetation, bottom sediments, and stream banks by the movement of vehicles in and around the stream. In addition, the presence of construction equipment near surface water could result in contamination through spills of fuel, lubricants, or other hazardous materials.

However, the Draft EIS also indicates that many of these potential impacts to surface water resources are unlikely or minor, and can be easily mitigated. For example, introduction of contaminants into water will generally be minor, as contaminants will only be present in small amounts and are "insufficient to cause significant impacts to surface water quality beyond local reductions during construction." Draft EIS at 4.4-27. In addition, the potential for significant impacts is only present during the short period required for construction, limited to 14 days for bridge construction, and 1 to 2 days for culverts. Draft EIS at 4.4-27. Furthermore, as many of the streams are intermittent, work on culverts and

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bridges can be confined to the dry season, eliminating the possibility that pollutants will be introduced into waterways.

In its discussion of the potential impacts to surface water resources in Minnesota, the Draft EIS clearly indicates that reconstruction impacts are expected to be insignificant. Draft EIS at 3.2-16 & 17. In addition, the reconstruction impacts in South Dakota would also be insufficient to cause significant impacts. Draft EIS at 4.3-14 & 15. The Draft EIS relies on minimal mitigation measures to make this conclusion. These include rehabilitation of disturbed vegetation, installation of rip-rap, and limitation of construction activities to dry periods.

During operation of the newly constructed railway, the potential exists for pollutants to enter into surface water in the event of a derailment. However, as the Draft EIS recognizes in several locations, the impact of this very unlikely event will generally be insignificant. First, this impact would only occur in the event of a derailment, which is rare and will become even more rare with the modernization and upgrading of the DM&E line, a significant benefit of the Project. Second, the derailment would have to occur in the vicinity of a water crossing that contains water. This also is unlikely, as water crossings account for a very small percentage of the total railway miles, and due to the dry climate in much of the Project area, most of the water crossings are intermittent and therefore lack water much of the year. Finally, the Draft EIS recognizes that "only limited amounts of potential contaminants are transported by DM&E." Draft EIS 3.2-17.

Moreover, the Draft EIS indicates that the impact most likely to occur would result from bridge and culvert maintenance activities. These activities are generally infrequent, would require only minimal in-stream work, and could generally be performed during periods of low water. For these reasons, the Draft EIS considers these impacts to be minor. Draft EIS at 4.4-27.

Although the mitigation measures described in the Draft EIS would be sufficient to reduce the impacts to a non-significant level, DM&E will perform significant additional mitigation measures beyond those discussed in the Draft EIS. For example, the DM&E Section 404 permit application includes detailed BMPs designed to prevent storm water pollution and erosion resulting from the Project. Project Section 404 permit application, Vol. 1, Attachments B & C. The BMPs currently include the use of sediment basins, sediment traps, and barriers to isolate the effects of construction and minimize impacts. In addition, DM&E will

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revegetate all disturbed areas immediately after construction, or as soon as is practical, to avoid water quality degradation. Furthermore, DM&E will perform construction work during periods of low or no flow to reduce potential impacts. For an additional description of BMPs to be integrated into the Project, please see the Section 404 permit application, Volume 1.

2. Groundwater

Contamination of groundwater during new construction is "unlikely due to the small quantities of [contaminants] that would be onsite and the depth to groundwater (several hundred feet to over one thousand feet below ground surface).... Any contamination would not likely be significant due to the limited quantities of materials available to enter the aquifer and its dilution upon entering the groundwater." Draft EIS at 4.4-31.

Reconstruction of the existing line is also unlikely to result in any significant impacts: "[t]he rebuild of the existing DM&E rail line in Minnesota should not result in significant impacts to groundwater aquifers or wells in the project area." Draft EIS at 3.2-18. Reconstruction and operation in South Dakota will likewise have minimal impacts: "impacts to ground water are unlikely due to the limited quantity of fuel and contaminants present during reconstruction and operation of the railroad. In addition, the rebuilt rail line is expected by DM&E to be safer than the current track in operation, and therefore less likely to experience derailments." Draft EIS at 4.3-17 & 18.

The Draft EIS clearly indicates that with the implementation of minimal mitigation measures, which DM&E has already committed to performing, the impacts to water resources will be reduced to below the level of significance. The Final EIS should indicate that impacts to water resources will be insignificant, with an explanation for the change in determination from the Draft EIS, or to demonstrate precisely the significance of the impacts with a discussion of which mitigation measures will eliminate or minimize those significant impacts.

3. Geologic Hazards

The Draft EIS, in the Conclusions chapter, indicates that the Project will have significant impacts to Geologic Hazards. Draft EIS, Table 6-2, at 6-11. However, the specific discussion of this resource reaches the opposite conclusion. The Draft EIS states, "while the potential for significant impacts exists, SEA does not believe such impacts would actually occur." Draft EIS at 6-16. The SEA

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arrives at this conclusion by relying in part on the mitigation measures to be implemented by DM&E, as allowed by NEPA. Therefore, the Final EIS should reflect this conclusion, clearly indicating that the Project is in fact not likely to have any significant impacts to Geologic Hazards. Furthermore, the Final EIS should recognize that the Project proponent will engage in the best construction techniques available to ensure that such impacts do not occur.

IV. Mankato and Owatonna Connection Alternatives

A. Mankato "Bridge" Connection (DM&E to DM&E)

At the time of the Project filing in 1998, DM&E included in its application a proposal to construct approximately 13-miles of new rail line in the vicinity of Mankato, MN. This would create an independent, DM&E-owned track as an alternative to current DM&E operations via Union Pacific Railroad trackage rights in that area. Variations of this proposal are referred to in the Draft EIS as Alternatives M-2 and M-3. Based on our review and discussions to date, DM&E believes that Alternative M-3 makes the most sense and involves the least amount of impact. The Draft EIS states a contrary view, for legal and other reasons. Research and discussions since the original application warrant consideration of another Mankato option that should be considered in the Final EIS, which is "No Action" on the Mankato portion of the construction application.

Initially, DM&E believed that continued operation over Union Pacific rail line in Mankato via existing trackage rights was not practicable. Given the discussions, research and analysis since our original application, however, DM&E wishes to convey to the STB its current belief that DM&E may be able to operate in the Mankato area over the existing Union Pacific line. The Draft EIS includes Alternative M-1 - the No-Action Alternative for Mankato - and is described as the "denial of DM&E's Application." Draft EIS at ES-50. If this denial is limited to the construction in the Mankato area, DM&E believes it is a viable alternative which merits further consideration between now and the Final EIS. However, if the above-quoted reference implies denial of the entire Project, then DM&E would propose a new Alternative M-4 for the Mankato area, which would consist of continued operation through Mankato on existing trackage rights without the construction of an independent DM&E line, while also approving the balance of the Project.

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B. Owatonna Competitive Connection (DM&E to I&MRL)

DM&E agrees with the Draft EIS's designation of the O-4 Alternative (shortest connection) as the preferred action alternative. Alternative O-4 should be approved. This is true even though DM&E believes that the common sense result of this approval would be to facilitate a private agreement between the two railroads which would obviate the need for its ultimate construction (i.e., STB authority to construct the O-4 Alternative would lead to utilization of what is defined in the Draft EIS as the O-5 Alternative). But without approval of Alternative O-4, neither Alternative likely will be implemented and a significant part of the Project's stated purpose and need (i.e., to provide meaningful competitive alternatives for existing and future customers) would be defeated because neither a private agreement for using the existing connection nor construction of an independent competitive connection could be achieved. This issue is understandably confusing because of the peculiar history behind it. Understanding that history and DM&E's current operations there may help.

When DM&E was created from parts of the former Chicago & North Western Railroad ("CNW") in 1986, CNW retained slightly over 2 miles of track in Owatonna in order to prevent DM&E from interchanging traffic with the Soo Line Railroad (which at the time owned the track that today belongs to the I&M Rail Link ("IMRL")). This 2-mile segment constituted a truly remote "island", physically separated from and remote to the rest of the CNW system. DM&E enjoyed exclusive (but limited) operating rights on this CNW island that CNW itself could not reach.

Unless there is a pro-competitive alternative, there is no logical reason to negotiate reasonable competitive use of the existing connection. The authority DM&E seeks here, however, is not sought in an attempt to eliminate a contract obligation. Seeking competitive options *for DM&E's own line* is fully consistent with DM&E contract obligations and encouraged by federal statute. Seeking STB authority for DM&E to use the UP-owned "island" line for constructing a competitive connection, however, would not logically square with the trackage rights agreement. And if for inexplicable reasons DM&E is unable to reach a mutually agreeable compromise with UP, it is DM&E's intention to build a competitive access connection. But DM&E does not believe that is either necessary or likely. Common sense will prevail. DM&E has a good, positive working relationship with UP and this is a straight-forward business issue. UP can and should expect reasonable compensation in reaching an agreement, and the

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cost of constructing Alternative O-4 provides all the common sense incentive in the world for both parties to take the logical path of a negotiated agreement

DM&E and the City of Owatonna are in agreement that the best alternative for Owatonna is the O-5 Alternative (using the existing connection in town). But DM&E agrees with STB's interpretation as to the agency's legal limitations in granting construction authority that would fundamentally alter a foreign railroad's mainline operation (albeit a hypothetical one) given the history of this issue and the existing agreements. Unlike the situation with Mankato, there is not a partial "no-action" alternative that will work in Owatonna.

The Draft EIS provides the best solution within STB's proper jurisdiction. It is consistent with the original contractual agreements. It is not only within the STB's authority to grant, but it also promotes the kind of competitive options Congress has encouraged by statute. It is necessary to achieve the purpose and need of the Project, which DM&E also believes is strongly encouraged by congressional statute and STB policy. This connection is important to both existing agricultural and other customers, and potentially for new customers as well. Even though traffic may or may not actually flow in this direction, simply having the alternative available will create profoundly positive pro-competitive effects.

V. Bypasses

A. General bypass issues

Three bypasses were being advocated by the three communities of Rochester, MN, Pierre, SD and Brookings, SD as of the Draft EIS publication. The Draft EIS eliminated Pierre from further consideration, and sought more input relative to Rochester and Brookings, noting a preliminary preference for the Brookings proposal. For reasons set forth below, and in Attachment A hereto, and in our previous submissions to the STB on the bypass issue, the Final EIS should eliminate all bypasses from further consideration.

The Draft EIS incorrectly analyzes the Rochester and Brookings bypass proposals as Alternatives. See Draft EIS at ES-55 to 58. These are not Alternatives as defined by NEPA. There is no "Proposed Action" for which any of them can serve as a Reasonable Alternative. As the Draft EIS correctly points out and as was noted in the original EIS scoping, the STB has no authority over the reconstruction of DM&E's existing line. The review conducted in that regard

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is for the Corps' Section 404 permitting process. The Corps and the U.S. Coast Guard are the only federal agencies with substantive jurisdiction which are considering "Proposed Actions" on any Rebuild (as defined in the 1998 Application) portion of the Project. The Draft EIS purports to have the STB consider the bypass proposals from the communities as Alternatives to rebuilding DM&E's existing line. But DM&E seeks no authority from the STB to rebuild its existing line. It is not a "Proposed Action" for which federal action from the STB is sought or required. STB has no authority to unilaterally create Proposed Actions, much less consider Alternatives for them. As noted in Part II ("Contravention") of the attached bypass analysis (Attachment A), STB's further consideration of the bypasses as potential "Actions" contravenes 49 U.S.C. 10901 permitting and due process requirements, and would lead to micro-management regulation foreign to U.S. law and policy governing rail transportation. The Draft EIS purports to consider imposing an unprecedented degree of micro-managed regulatory control by suggesting the possibility of dictating to the railroad which track it must use to move specific commodity types. This is without precedent. To dictate which of two FRA certified rail lines can and cannot be used for different commodity types would establish a policy precedent that is inconsistent with almost every basic principle upon which rail policy in this country is based. It is supported by no statute, regulation or precedent from the Board or its predecessor agency.

DM&E also would like to restate in summary form some of the basic practical reasons that bypass proposals should be rejected:

1. **Legal problems.** In the event the STB does further consider and order bypasses, that action will clearly be challenged by affected landowners and others, and we fully expect the agency's action would be overturned. Further, there would be endless state and Constitutional litigation over property issues given the demonstrable lack of "need" for such taking. The legal problems go well beyond STB jurisdictional and other statutory defects. But win or lose, the legal proceedings triggered by such an order likely would kill the Project. For all intents and purposes, even without considering the extraordinary costs of building and operating the bypasses, Project approval conditioned on a bypass is tantamount to Project denial.

2. **Fairness.** The "bypass" proposals are not bypasses. They are alternative routes. They make the problem much bigger than it needs to be, and then push it off on what is perceived to be a politically weaker group. This is a

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NIMBY ("not in my backyard") issue. And the construction of a bypass is far more problematic from an impact standpoint than traffic impacts that bypass proponents raise. The construction impacts on our existing line are in relative terms almost non-existent compared to the construction impacts through the developed properties that the bypass routes propose to use. These proposals do not merely *shift the inevitable traffic impacts* (though they certainly do that), but they also *create new and unnecessary construction impacts*. The construction impacts in the developed areas affected by the Brookings and Rochester (the Pierre proposal does not go through lands as highly developed) are far more traumatic and less susceptible to effective mitigation than traffic impacts on an existing, operating line.

3. **Safety.** Bypasses create significant new safety problems without solving the existing ones. The safety issues that are in dire need of attention on our existing line cannot be adequately addressed if DM&E is forced to build a second line. Bypass proponents like to cite safety as a reason for advocating bypasses, but they fail to recognize the serious safety problems on the existing lines for serving existing customers. Derailments, crossing problems, lack of positive train control, and all the other safety issues confronted in communities today do not go away. The existing condition only worsens. In fact they are not simply dumping safety problems onto others, as many expect. They are worsening their own safety problems and creating new ones for their neighbors.

4. **Shipper Service.** The bypasses eliminate the possibility of achieving an important Project purpose of improving and preserving service to existing DM&E shippers. Each of the bypass proposals also "bypasses" important DM&E customers. The opportunities to dramatically improve service for those shippers will certainly be lost. More fundamentally, it could have the opposite result in that Project approval conditioned on a bypass will actually eliminate service to existing customers. It is illogical to believe that existing traffic base will support redundant lines in the long term.

5. **Cost.** The cost of the bypasses is unreasonable and unwarranted. Their actual costs are unknown because there has been no material engineering conducted to date to provide reasonable costs. The costs submitted do not include material environmental mitigation, and are inconsistent with our experience (as detailed in our previous filings on this subject). The Cities' estimates are unrealistically low. As to the cities' share of the costs, DM&E hesitates to even comment on the cost share issue because it does not wish to suggest or imply

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acquiescence to such unprecedented or ill-advised action. But because the Draft EIS specifically requested input on that subject, we will respond. Our comments do not suggest that DM&E would agree to such an arrangement. We emphasize that even if the city is required to pay 100% of the costs, the bypass concept is fraught with so many legal and other problems that it should be rejected on its own lack of merit. A city seeking a bypass should bear the costs of its own proposal. DM&E is responsible for the cost associated with its proposal. It should not be required to accept responsibility for someone else's untested and unrealistic estimates. If a cost is assigned to DM&E, it should be based on an amount not to exceed a defined percentage of the cities' estimated costs. This would hold each city accountable for its own estimates, and accountable for 100% of cost overruns. The defined percentage of DM&E's share (if there is a sustainable determination that DM&E must pay any portion of the city's proposal) should not exceed 5% and 10% of the estimated cost. That is generally the cost share percentage applied in other railroad mandated mitigation or rail participation in public funded obligations.

6. Uncertainty. The bypass proposals are concepts, lacking adequate information to make an informed decision as to the claims being made by their proponents. The routing was developed as a political exercise, not as a rail Project. Those who developed these concepts did so unencumbered by real world practical issues such as operating efficiency, capital costs, safety, or any other fundamental notion of accountability in needing to live with their decisions. The Draft EIS articulated a healthy concept of cost accountability, but unfortunately did so after the proposals were submitted.

For these and other reasons, as the applicant DM&E would propose that if the STB finds that one of the bypasses must be made part of the Project and its order, DM&E would prefer that STB simply deny the application outright. The practical effect will be the same. To approve the Project conditioned upon a requirement to build a bypass would be the practical equivalent of banishing it to legal and financial oblivion. Project denial obviously would be a tragic outcome from our perspective, but it would be less agonizing in the long run.

B. Brookings Substitute.

While DM&E has not had an opportunity to see the Brookings submission, it appears through media reports that the city has determined to submit a new proposal completely different from that which was outlined in the Draft EIS. This should not be permitted. Allowing that type of change at this late date would be

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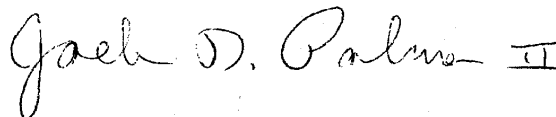
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fundamentally unfair to all involved, and would create additional delays and opportunities for further legal process challenges. The STB established the ground rules early on in the scoping process documents and orders. Brookings should not be permitted to violate those rules with this last minute substitute. It could have submitted the completely different, shorter route originally, but it chose not to. It rejected that option, and is changing now only because it has acknowledged how unreasonable its original proposal was and has become concerned that it may have to be accountable for its cost. Our previous comments relative to the Brookings bypass are based on the original plan submitted. Allowing a new proposal would require new analysis and more delay. Brookings submitted an unrealistic proposal in its original submission, as evidenced by this last minute attempt to substitute it for a bypass less than half as long. The original should be rejected on its merits (legal, engineering, and others), and the new proposal submitted after the STB deadline should not be accepted for further analysis.

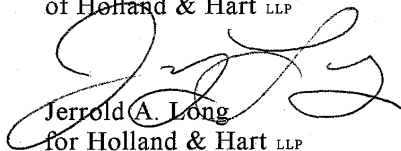
VI. Conclusion

NEPA does not require that a project have no adverse impacts, or that all adverse impacts be mitigated to a non-significant level, prior to approving a project. Rather, NEPA requires that any significant adverse impacts be properly considered, and weighed against potential benefits, before an agency can make a final decision. DM&E has worked with federal, state and local governments, and with impacted Landowners, on mitigation measures designed to eliminate or substantially minimize the Project impacts. Under these circumstances, when the national, regional, and local benefits are weighed against the environmental effects of the Project, they support choosing Alternative C as the preferred alternative for the Project.

Sincerely,



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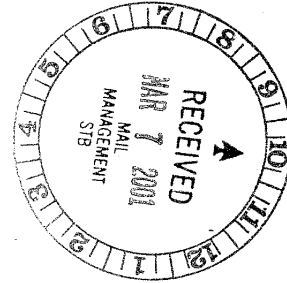
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March 2, 2001

Office of the Secretary
Case Control Unit
Finance Docket NO. 33407
Surface Transportation Board
1925 K Street, NW
Washington, D.C. 20423-0001



**Re: DM&E Proposed Expansion into Powder River Basin —
STB Authority to Impose City Bypasses as Mandatory
Mitigation in Reconstruction Portion of Project**

Dear Ms. Rutson:

We submit these comments on the proposed Powder River Basin Expansion Project ("Project") on behalf of the Dakota, Minnesota & Eastern Railroad Corporation ("DM&E"). These are preliminary comments to a more detailed filing that will be presented at a later date. DM&E reserves the right to make additional comments before the close of the comment period as it deems necessary.

These comments respond to concerns raised in many comments submitted to the STB to date regarding the STB's authority to impose city bypasses as mandatory mitigation in the reconstruction portion of the Project. These comments intend to clarify the law and DM&E's position regarding the bypasses.

I. JURISDICTION

A. The STB Has No Jurisdiction Over the Re-Construction Portion of the Project

The STB may not act in any area over which it possesses no jurisdiction: "[i]t is central to the real meaning of the rule of law, and not particularly controversial that a federal agency does not have the power to act unless Congress, by statute, has empowered it to do so. Agency actions beyond delegated authority are 'ultra vires,' and courts must invalidate them." *Transohio Savings Bank v. Office of Thrift Supervision*, 967 F.2d 598, 620

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(D.C. Cir. 1992) (emphasis added). As the Interstate Commerce Commission ("ICC") itself has expressly stated: "[i]t is black letter law that the Commission cannot by regulation, rule, precedent or policy bestow upon itself subject matter jurisdiction not bestowed upon it by an Act of Congress." *City of Detroit v. Canadian Nat'l Ry. Co.*, 9 I.C.C.2d 1208, 1220 (1993).

The extent of the STB's statutory authority and jurisdiction is articulated very clearly. The Interstate Commerce Commission Termination Act of 1995 confers STB jurisdiction over *only* applications to "(1) construct an extension to any ... railroad lines; (2) construct additional railroad lines; [and] (3) provide transportation over, or by means of, an extended or additional railroad line." 49 U.S.C. § 10901(a). The STB regulations provide that "[e]xisting carriers require approval under section 10901 *only to construct new rail line* or operate a line owned by a non-carrier." 49 C.F.R. § 1150.1(a) (emphasis added). Furthermore, the STB's predecessor, the Interstate Commerce Commission ("ICC"), recognized that there should be no regulatory impediments to railroad reconstruction or improvements: "[a]s we note above, the Commission interpreted the Act and its legislative history as indicating that *Congress did not intend to regulate improvements to existing systems.*" *Detroit/Wayne County Port Auth.*, 59 F.3d 1314, 1317 (D.C. Cir. 1995) (emphasis added); *see also City of Detroit v. Canadian Nat'l Ry. Co.*, 9 I.C.C.2d 1208, 1218 (1993) ("As the Supreme Court noted in *Texas & Pacific* [, 270 U.S. 266 (1925),] and as the statute itself makes clear, not all rail construction falls within the scope of § 10901. Only extensions to railroad lines and additional lines do so").

Congress never intended the STB to regulate the improvement or rehabilitation of existing rail lines:

Investing in existing systems, however, was not the kind of activity Congress sought to regulate in 1920. If anything, Congress sought to encourage railroads to improve existing services. . . . Congress did not give any indication that it intended to erect regulatory hurdles to a carrier investing its capital to improve its own plant.

City of Detroit v. Canadian Nat'l Ry. Co., 9 I.C.C.2d 1208, 1216 (1993). Congress restated its desire to limit regulation of the rail transportation system with the passage of the ICC Termination Act of 1995. That act expressed the desire of Congress to "minimize the need for Federal regulatory control over

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the rail transportation system and to require fair and expeditious regulatory decisions when regulation is required." 49 U.S.C. § 10101(2).

The STB itself appears to recognize these limits of its jurisdiction. The STB makes this point very clearly in the Draft EIS: "[r]ailroads are not required to seek the Board's authority to rehabilitate or improve their existing systems." Draft EIS at ES-48. The Draft EIS further recognizes, "DM&E's Application did not seek the Board's approval of DM&E's plans to rehabilitate its existing rail line in South Dakota and Minnesota given the fact that railroads can repair, replace, or rehabilitate their existing lines *without any Board authority*." *Id.* (emphasis added).

Consequently, the STB's authorizing statute and its implementing regulations, the case law construing them, and the STB's own comments all conclusively demonstrate that the STB lacks jurisdiction over the reconstruction portion of the DM&E Project.

B. Since The STB Does Not Have Jurisdiction Over The Re-Construction Portion of the Project It Can Not Impose Conditions Upon the Re-Construction

It is clear that the reconstruction portion of the Project would likely not occur without the expansion into the Powder River Basin. However, that fact does not increase the STB's jurisdiction such that it covers the reconstruction. While the extension authorization may be a practical prerequisite for reconstruction to proceed, it is not a legal prerequisite, and therefore does not grant jurisdiction over the reconstruction, nor the ability to impose conditions on that reconstruction. *See Natural Resources Defense Council, Inc. v. EPA*, 822 F.2d 104, 130 (D.C. Cir. 1987) (holding that merely because a permit is a practical prerequisite to completion of unregulated portions of a project does not grant agency authority over those otherwise unregulated portions).

The ICC Termination Act does allow the STB to impose conditions on a certificate authorizing new construction pursuant to Section 10901: "[s]uch certificate may approve the application as filed, or with modifications, and may require compliance with conditions (other than labor protection conditions) the Board finds necessary in the public interest." 49 U.S.C. § 10901(c). However, this provision cannot expand the STB's regulatory authority beyond the express jurisdictional limitations contained in 49 U.S.C. § 10901.

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The DEIS appears to approach the existing DM&E system analysis according to rail merger cases guidelines, in that it assumes STB jurisdiction to impose conditions relative to an existing rail line that is operating within all federal and state legal standards. While the DEIS recognizes that the existing DM&E system is non-jurisdictional as to STB authority in this case, it purports to recommend STB-ordered conditions to be applied to this non-jurisdictional "downstream" line, based on "downstream" impacts resulting from the jurisdictional action. There is no authority cited for this concept, and we have been unable to find any. Instead, it appears to simply adopt the rail merger cases methodology, which springs from a separate and very different statute, with entirely different jurisdictional limitations.

In merger cases, the STB appropriately has imposed conditions upon an entire rail transportation system. In particular, local community impact issues have received increasing attention. However, in merger cases, the entire "combined system" rail operation is within the scope of the transaction and within the proper immediate jurisdiction of the STB (i.e., directly within the proposed action that is subject to the STB's jurisdiction). By contrast, DM&E's filing with the STB is a filing for new construction, and any bypass is "downstream" of the new construction and therefore not part of the proposed action before the STB. In this case, STB's conditioning authority is limited to the New Construction extension, and does not extend to the remaining system.

This is not to suggest, however, that the applicant is not subject to scrutiny of its existing system.

First, this case does involve agencies with proper direct jurisdiction over the Rebuild portion of the DM&E system. The Rebuild portion of DM&E is not "non-jurisdictional" to those agencies, and is subject to extensive mitigation requirements under their organic statutes. The Corps of Engineers is one example.

Second, even without STB regulation over the non-jurisdictional portion of the line, other agencies have and will continue to maintain important safety compliance and other appropriate regulatory controls over DM&E. This analysis does not suggest that impacts resulting from this project are not subject to federal scrutiny; simply that 10901 does not confer authority to the STB in this regard (The Federal Railroad Administration is one example of a federal agency with such jurisdiction).

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Third, while STB's jurisdiction to impose conditions on downstream impacts is called into question here, its authority to analyze and consider downstream impacts is not. If the STB finds that unmitigated impacts are so great as to justify the No Action alternative, it would certainly be within its prerogative to do so. Accordingly, DM&E has and will continue to undertake aggressive voluntary mitigation efforts relative to the non-jurisdictional line in order to prevent that result.

Case law is well established that an agency may only impose conditions within its express statutory authority. Agencies may not exercise jurisdiction over activities which may be related to the proposed action but are "downstream" of the proposed action in the manner than DM&E's rebuild and any bypasses or other mitigation related thereto are "downstream" of DM&E's new construction. Indeed, the Courts have made this point strikingly clear in cases construing the limits of agency jurisdiction over activities upstream or downstream of a proposed action regulated under the federal Clean Water Act ("CWA").

The CWA contains the broad goal to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." 33 U.S.C. § 1251(a).¹ Despite this broad statutory mandate from Congress, the federal circuit courts have consistently held that the agencies that implement the CWA may only regulate and condition those activities within their express jurisdictional grant of authority under the CWA. They may not extend their authority over activities outside their jurisdictional grant by conditioning the activities within their statutory authority.

The CWA grants the Environmental Protection Agency ("EPA") the authority to permit the discharge of pollutants. 33 U.S.C. § 1342(a)(1). Included in that authority is the ability to impose "such conditions as the [EPA] deems necessary to carry out the provisions" of the Act. *Id.* These provisions include, of course, the broad Congressional goals and policies mentioned above. However, despite that clear grant of authority to condition permits, the D.C. Circuit Court of Appeals held that such conditions could only apply to the specific activity over which the EPA holds jurisdiction. The court noted that the "EPA can properly take only those actions authorized by the CWA - allowing, prohibiting or conditioning the pollutant discharge." *Natural*

¹ This section goes on to list seven additional goals and policies of the CWA.

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Resources Defense Council, Inc. v. Environmental Protection Agency, 859 F.2d 156, 169-70 (D.C. Cir. 1988). Therefore, "contrary to EPA's assumption, the CWA does not empower the agency to regulate point sources themselves; rather, EPA's jurisdiction under the operative statute is limited to regulating the discharge of pollutants. . . . [T]he agency is powerless to impose permit conditions unrelated to the discharge itself." *Id.* Put another way, the EPA may not impose permit conditions unrelated to its specific jurisdictional authority: "even considering the whole of EPA's authority under the CWA, the imposition of non-discharge related conditions in new point source permit does not fall within its scope." *Id.* at 170 fn. 8.

The Second Circuit held similarly in a case considering the Army Corps of Engineers' ("Corps") authority under the CWA. The CWA grants the Corps the authority to permit the discharge of dredged or fill material into the nation's waters. However, again despite the far-reaching goals and policies of the CWA, the court found that the Corps could only impose conditions within its clearly established jurisdiction: "[b]ecause the Secretary's jurisdiction is limited to the issuing of permits for such discharges, we agree with the district court that any conditions imposed in the permit must themselves be related to the discharge." *United States v. Mango*, 199 F.3d 85, 93 (2nd Cir. 1999).

The court further clarified that, despite its wide-reaching public interest regulations, the Corps could not regulate the entire activity leading to the discharge:

We reject the government's broader argument that its public interest regulations allow it to set conditions related to the entire activity involving the discharge. When properly read, the public interest regulations do not indicate an intent to regulate the entire activity rather than the permitted discharge. Although the regulation refers to the 'proposed activity,' the activity that the Secretary permits pursuant to Section 1344 is the discharge. Therefore, the conditions must be related to the discharge itself.

Id. at 93 fn. 7.

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Similarly, the grant of authority in 49 U.S.C. § 10901 clearly evinces an intent to regulate only the construction of new lines, rather than the rehabilitation or improvement of existing lines. The improvement of existing lines "*does not even trigger Board jurisdiction under 49 U.S.C. § 10901.*" *Lee's Summit, Missouri v. Surface Transportation Board*, 231 F.3d 39, 42 fn. 3 (D.C. Cir. 2000) (emphasis added). Therefore, consistent with the decisions in *Natural Resources Defense Council* and *Mango*, the STB does not possess the authority to condition any activity other than that action over which the STB has been specifically granted jurisdiction by Congress. With respect to this Project, the STB can properly assert jurisdiction over and condition only those actions authorized by Section 10901 – allowing, prohibiting, or conditioning the new construction. *See Natural Resources Defense Council*, 859 F.2d at 169-70.

In the Draft EIS, the STB acknowledges that it may only impose conditions on the action before it:

As a government agency, the Board can only impose conditions that are consistent with its statutory authority. Accordingly, *any conditions the Board imposes must relate directly to the transaction before it*, must be reasonable, and must be supported by the record before the Board. Thus, the Board's practice consistently has been to mitigate only those impacts that result directly from the proposed action.

Draft EIS at 7-6 (emphasis added). Impacts from the reconstruction do not result directly from DM&E's proposed action. *See City of Auburn v. United States Government*, 154 F.3d 1025, 1033 (9th Cir. 1998) (holding that impacts of upgrade and rehabilitation did not flow directly from STB approval of a sale that would lead to upgrade). Again, the proposed reconstruction is not before the STB in any fashion, and is only discussed to ensure that other agencies with authority over discrete segments of reconstruction will fully understand the environmental impacts of the complete project. STB cannot legitimately contend that the proposed bypasses are conditions related to its authority over new construction. Again, the point was made very clearly in *NRDC v. EPA*, *supra*, that merely because a permit is a practical prerequisite to completion of unregulated portions of the project, it does not grant agency authority over

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those otherwise unregulated portions of a project. Here, the reconstruction of DM&E's existing rail line is an unregulated portion of the Project.

For these reasons, the STB should advise the public in the Final EIS that the STB has no authority to mandate the implementation of city originated bypass proposals for reconstruction in a Section 10901 certification. The Final EIS should also clearly indicate that the bypass proposals are, at most, measures that might be implemented to mitigate potential impacts unrelated to the STB's, or any other agency's, jurisdiction over the Project. The bypasses should be discussed in a manner that clearly explains their role as extra-jurisdictional mitigation.

**C. The National Environmental Policy Act Does Not Allow the
STB to Impose Mitigation Measures Over which it has no
Jurisdiction**

The Draft EIS contains a commendable and thorough discussion and analysis of the potential impacts of the entire reconstruction portion of the Project. Generally speaking, the National Environmental Policy Act ("NEPA") would not have required that the STB perform an analysis of the reconstruction, as the STB is undertaking no action with regard to reconstruction and possesses no authority to do so. As the Ninth Circuit noted in the *City of Auburn* case, "we find the parameters of the EA set by the STB, *which exclude the impact of the upgrading and rehabilitating* of the portion of the rail line already owned by Burlington, do not constitute an abuse of discretion." *City of Auburn v. United States Government*, 154 F.3d 1025, 1033 (9th Cir. 1998) (emphasis added).

However, due to the size and complexity of this Project, and the interrelated nature of the all segments of the Project, the STB chose to consider the impacts of the entire Project, including reconstruction. Furthermore, the reconstruction may require analysis under NEPA for other reasons, including primarily the jurisdiction of the Corps over necessary wetland fill operations. The Draft EIS therefore contains the discussion and analysis of the impacts of reconstruction so that it might "satisfy the regulatory requirements of all the cooperating agencies." *Id.* at ES-49. However, the fact that the STB is considering all impacts of the Project should not be read by any party to suggest that the STB possesses authority over all areas analyzed.

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In considering the environmental impacts of a proposed Federal action, NEPA requires a Federal agency to consider those measures which might mitigate otherwise unavoidable adverse effects, including measures that might be outside of the action agency's jurisdiction. *See Robertson v. Methow Valley Citizens Council*, 490 U.S. 332 (1989). However, the requirement that an agency consider possible mitigation measures does not mandate the implementation of those measures. *See id.* at 352. In fact, as long as all of an action's environmental effects are considered, an agency may approve a project without any mitigation measures. *See id.* at 352-53.

Should an agency decide to impose mitigation measures as part of a permit or authorization for a project, it may only do so for measures that fall within its substantive jurisdiction. The NEPA requirement to consider and analyze possible mitigation does not bestow upon an agency any authority in addition to that contained in its substantive statute: "NEPA does not, however, expand the range of final decisions an agency is authorized to make. NEPA does not expand an agency's substantive powers. Any action taken by a federal agency must fall within the agency's appropriate province under its organic statute(s)." *Natural Resources Defense Council, Inc. v. EPA*, 859 F.2d 156, 170 (D.C. Cir. 1988); *see also Cape May Greene, Inc. v. Warren*, 698 F.2d 179, 188 (3rd Cir. 1983) ("The National Environmental Policy Act does not expand the jurisdiction of an agency beyond that set forth in its organic statute"). Although an action agency may not require mitigation outside its substantive jurisdiction, it may still authorize or permit a project, even if such mitigation will not occur. *See Methow Valley*, 490 U.S. at 352-53.

Unfortunately, the mischaracterization of the bypasses as "alternatives to the proposed action" improperly suggests that the STB possesses the ability to impose or select the bypasses as part of the 49 U.S.C. § 10901 certification. However, NEPA does not expand an agency's jurisdiction regardless of how the particular measure might be characterized. In any event, the city bypasses are clearly not alternatives as contemplated by NEPA. NEPA requires the consideration and analysis of "alternatives to the proposed action." 42 U.S.C. § 4332(C)(iii). The "proposed action" consists exclusively of the *Federal action*: "[i]n commanding agencies to discuss 'alternatives to the proposed action,' however, NEPA plainly refers to alternatives to the 'major Federal actions significantly affecting the quality of the human environment,' and *not to alternatives to the applicant's proposal*." *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 199 (D.C. Cir. 1991), *cert. denied*, 502 U.S. 994 (1991) (emphasis added). In this case, the major Federal action is the authorization of

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the DM&E's rail expansion into the Powder River Basin, and not the re-construction of the existing line. Therefore, NEPA does not require the designation, consideration or analysis of any alternatives to the re-construction, including city bypasses. Instead, the bypasses are extra-jurisdictional measures proposed to mitigate indirect impacts of the proposed action. The Final EIS should clearly designate the proposed bypasses as extra-jurisdictional mitigation measures, and so consider and analyze them.

In summary, therefore, the STB may only impose mitigation for those segments of the Project that lie within its substantive jurisdiction. Consistent with this principle of law, the Final EIS should clearly indicate that the STB possesses no authority or jurisdiction over the proposed reconstruction and may not impose city bypasses as mandatory mitigation as a condition of its Section 10901 certification of the Project.

II. CONTRAVENTION

It is basic hornbook law that NEPA does not enlarge an agency's authority under its organic statutes. *C.E.G., Inc. v Warren*, 698F.2d 179, 188-189 (3rd Cir. 1983). As we have noted above, the STB's authority and jurisdiction extend only over applications to "(1) construct an extension to any . . . railroad line; (2) construct an additional railroad line [and] (3) provide transportation, over, or by means of, an extended or additional railroad line." 49 U.S.C. § 10901(a). However, even assuming, *arguendo*, that STB finds that 10901 gives it authority to impose conditions over the non-jurisdictional Rebuild of DM&E's existing rail operation, the authority granted under § 10901 is still not limitless. The STB can exercise that authority only if it finds it necessary to do so in the public interest. In exercising that authority, it could not reasonably be held to be in the "public interest" if it is exercised in a fashion that contravenes established law which is more specific than the general "conditioning authority" found in 10901. STB cannot use this general public interest conditioning authority to circumvent existing law or well established public policy, and simultaneously maintain a defensible, reasonable exercise of its discretion under 10901. Two examples where mandated bypasses in this case would contravene law and well established public policy include:

1. **Contravenes 10901 Application Procedure and Due Process.**
The construction of a bypass would be a construction case in its own right, and under 10901 would require an application and a due process opportunity for comment on the "public convenience and necessity

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showing" required by statute. Even assuming the STB has jurisdiction over the re-build, the most it can do is order DM&E to file an application to build a bypass, which would give affected parties the right to participate in the proceeding as to its need --it could not order construction of a bypass, in contravention of the 10901 filing requirements. And the STB should not condition approval of the Powder River Expansion project on the outcome of that subsequent and separate bypass construction case, for to do so would to prejudge the merits. We are certainly not advocating this approach, but think it has a better chance of withstanding legal challenge than a preemptory STB condition ordering the construction in contravention of the express requirements of 10901, and the due process requirements provided there under.

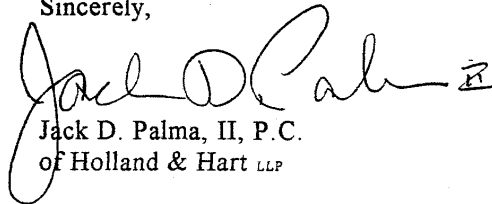
2. **Contravening Staggers Act and Deregulation Policy.** The STB has only those powers to act that Congress has delegated to it, and it is well settled that those powers do not include the regulatory authority to tell railroads what types and amounts of traffic it can move on what rail lines. It is well settled by statute and STB precedent that the STB should not be in the business of micro-managing rail traffic movement. As long as a rail line meets FRA standards, is meeting its common carrier service obligations, and other laws, a railroad can fully utilize its entire rail line to move traffic to maximum efficiency. In fact, one of the underlying policies of the Staggers Rail Act is to remove impediments to efficient utilization of our nation's rail capacity. The STB's bypass proposals purport to direct DM&E's rail traffic. See e.g. ES at pp. 59-60. Although there are specific circumstances under which the STB has the authority to impose "directed service," none of those are present in this case. Consequently, even assuming the STB could order DM&E to build one or more bypasses, it could not direct DM&E to move coal traffic over the bypasses in contravention of the letter and spirit of the Staggers Act and related federal rail policy.

HOLLAND & HART^{LLP}
ATTORNEYS AT LAW

Office of the Secretary
March 2, 2001
Page 12

These are two examples, but not meant to be all-inclusive. The bottom line is that this bypass concept is fraught with legal and policy defects not considered and addressed in the Draft EIS, and should be dropped now.

Sincerely,

A handwritten signature in black ink, appearing to read "Jack D. Palma, II", with a stylized flourish at the end.

Jack D. Palma, II, P.C.
of Holland & Hart^{LLP}

Jerrold A. Long
for Holland & Hart^{LLP}

JAL

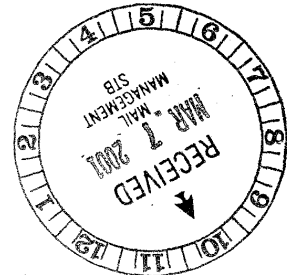
cc: Kevin V. Schieffer

Subject REDUCTION IN SO₂ EMISSIONS DUE TO DISPLACEMENT OF
BITUMINOUS COAL IN THE MARKET AREA SERVED BY
DM&E'S PROPOSED PRB EXPANSION PROJECT

To Chuck Linderman
Edison Electric Institute

From Jamie Heller, Trygve Gaalaas
PA Consulting Group

Date November 6, 2000



Per your request, this memorandum presents our estimate of the reduction in sulfur dioxide (SO₂) emissions which will occur between now and 2010 in the market area served by the Dakota, Minnesota and Eastern Railroad's (DM&E's) proposed Powder River Basin (PRB) expansion project as a result of higher-sulfur bituminous coals being displaced by PRB coal. Supporting calculations are also included.

Our estimate is that, by 2010, displacement of higher-sulfur bituminous coals within DM&E's market area will reduce SO₂ emissions by approximately 420,000 tons per year. Since this reduction will occur progressively between now and 2010, the total reduction in SO₂ emissions will be much greater than 420,000 tons, and the environmental benefits of greater PRB coal use will begin to be felt much earlier than 2010. The calculations supporting this estimate are explained in detail below.

As shown in Table 1 below, PRB coal shipments to power plants in DM&E's market area were approximately 137 million tons in 1999. Non-PRB (bituminous) coal shipments to plants in this region were 89 million tons, for a total of 226 million tons.

continued. . .

PA

- 2 -

Table 1
Summary Of 1999 Coal Use In DM&E's Market Area

Total PRB Coal Shipped To Plants In DM&E's Market Area

Total Tons PRB Coal (000)	137,085
Weighted Average Btu Content (Btu/lb)	8,737
Weighted Average Sulfur Content (lbs. SO ₂ /MMBtu)	0.75

Total Non-PRB Coal Shipped To Plants In DM&E's Market Area

Total Tons Non-PRB Coal (000)	89,288
Weighted Average Btu Content (Btu/lb)	11,857
Weighted Average Sulfur Content (lbs. SO ₂ /MMBtu)	2.48

Total Coal Shipped To Plants In DM&E's Market Area

Total Tons (000)	226,373
Weighted Average Btu Content (Btu/lb)	9,968
Weighted Average Sulfur Content (lbs. SO ₂ /MMBtu)	1.43

Data Sources: Primary source is FERC Form 423 data, as presented in FT Energy's COALDat database. Data for Ontario Power Generating (OPG) was estimated by PA Consulting Group since FERC Form 423 data is not available for OPG.

The PRB coal shipments contained an average of approximately 8,737 Btu/lb. and 0.75 lbs. SO₂ per million Btu (lbs. SO₂/MMBtu). The bituminous coal contained an average of approximately 11,857 Btu/lb. and 2.48 lbs. SO₂/MMBtu. Thus, on a per-million Btu basis, the bituminous coal emitted more than three times as much SO₂ as the PRB coal.

PRB coal demand within DM&E's market area is expected to total 250 million tons by 2010.¹ Thus, the total increase in PRB coal demand in this region between now and 2010 is expected to be about 113 million tons. These increases in demand can be attributed to three sources:

¹ As will be explained in more detail below, the average utilization of the coal-fired plants in DM&E's market region is expected to increase significantly between now and 2010. Although substantial displacement of bituminous coal will occur, there is expected to be at least 40 million tons of demand for bituminous coal in DM&E's market region in 2010 in addition to the large demand for PRB coal. The key environmental assumption underlying this forecast is that environmental regulations which significantly reduce coal demand (such as a carbon tax) will not be enacted prior to 2010.

continued. . .

continued. . .

PA

- 3 -

- 1) increased utilization of plants burning PRB coal,
- 2) use of a higher blend ratio of PRB coal at plants that currently burn a blend of PRB and other coals ("blend creep"), and
- 3) conversion of coal-fired plants that do not currently use PRB coal to PRB coal

Only the last two sources of demand increases (blend creep and conversions) involve displacement of higher-sulfur bituminous coal. Therefore, the first step in the emissions reduction calculation is to subtract out the portion of the PRB coal demand increases which can be attributed to higher utilization of the plants currently burning PRB coal.

The current National Electric Reliability Council (NERC) forecast of demand for electric generation in the three NERC regions which would be served by DM&E's proposed PRB expansion project is shown in Table 2 below.

Table 2
Estimated Generation Growth In DM&E's
Market Area

NERC Region	Actual 1999 Net Energy For Load	Forecasted 2009 Net Energy For Load	Annualized Growth Rate (%/year)
	(million KWH)	(million KWH)	
ECAR	547,846	633,686	1.5%
MAIN	243,278	284,000	1.6%
MAPP	152,350	185,403	2.0%
Total	943,474	1,103,089	1.6%

Source: National Electric Reliability Council (NERC) Electricity
Supply And Demand Forecast, 2000

As shown in the table, the average rate of increase in electricity demand which is projected for these three regions over the next decade is 1.6% per year. When applied to the 11-year period between 1999 and 2010, this yields a total demand increase of 19.1%.² Therefore, we estimate that increased utilization of the plants currently burning PRB coal in DM&E's market

² $(1.016)^{11} = 1.191$

continued. . .

continued. . .

PA

- 4 -

region will cause demand for PRB coal in this region to increase approximately 19.1%, from 137 million tons to 163 million tons.³

Therefore, approximately 26 million tons (163 million tons – 137 million tons) of the projected 113-million ton increase in PRB coal demand is attributable to increased utilization of the plants currently burning PRB coal. The remaining 87 million tons of the demand increase (113 million tons – 26 million tons) can be attributed to displacement of bituminous coal.

From this point, calculating the emissions reduction is fairly straightforward. The 87 million tons of PRB coal which are displacing bituminous coal contain approximately 1.52 billion MMBtu's.⁴ At 0.8 lbs. SO₂/MMBtu (or 0.0004 tons SO₂/MMBtu), this quantity of PRB coal emits 608,000 tons of SO₂.

However, even after accounting for the fact that a substantial number of plants currently burning bituminous coal will switch to a lower-sulfur bituminous coal by 2010, the SO₂ emissions associated with the PRB coal are significantly lower than the emissions produced by an equivalent quantity of bituminous coal. PA's dispatch modeling experience indicates that, given the rise in SO₂ emission allowance prices which we expect to occur over the next decade, it is unlikely to be economical in most cases to burn coal containing more than 2.0 lbs. SO₂/MMBtu in unscrubbed generating plants. Many (although not all) plants burning bituminous coal in DM&E's market area are likely to switch to Central Appalachian low-sulfur bituminous coal (containing between 1.2 and 1.5 lbs. SO₂/MMBtu) at some point over the next decade.

Therefore, we have assumed for purposes of this calculation that the average SO₂ content of the bituminous coal burned in DM&E's market area by 2010 will be 1.35 lbs. SO₂/MMBtu. Given this emissions assumption, the SO₂ emissions associated with 1.52 billion MMBtu's of bituminous coal would be 1,026,000 tons.⁵ Thus, the SO₂ emissions associated with the PRB coal are 418,000 tons (approximately 420,000 tons) lower than the SO₂ emissions associated with the bituminous coal.

³ The relationship between increases in PRB coal demand and increases in demand for electric generation is not exact and depends on a variety of complex factors (such as the mix of various types of generation in a particular region and the relative dispatch costs of plants burning PRB coal versus other coal-fired plants) which are beyond the scope of this analysis. However, we believe the methodology used above produces a reasonable estimate for purposes of the emission reduction calculation being made here.

⁴ 87 million tons x (8,737 Btu/lb x 2000 = 17.746 MMBtu/ton) = 1.52 billion MMBtu's.

⁵ 1.52 billion MMBtu's x (1.35 lbs./2000 = 0.000675 tons SO₂/MMBtu) = 1,026,000 tons SO₂

ATTACHMENT C

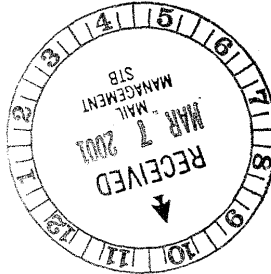
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*GE Transportation
Systems*

Stephen B. Trier
National Account Executive

General Electric Company
2015 Spring Rd., Suite 300
Oak Brook, IL 60523

December 4, 2000



Mr. Charles A. Linderman
Edison Electric Institute
701 Pennsylvania Avenue, N.W.
Washington D.C. 20004

Dear Mr. Linderman,

I am writing this letter at your request in order to provide Edison Electric Institute with some information regarding our AC locomotives.

The DM&E has studied the current coal market and has developed train mile savings estimate covering 100,000,000 annual tons of PRB coal movements on the railroad and its connecting carriers. A savings of 42,839,605 gallons of diesel fuel, annually, has been determined. This annual savings in gallons of diesel fuel is derived from gross ton miles saved for DM&E routes to power plants in its target markets. The fuel consumption comparison statistic is from the AAR Analysis of Class 1 Railroads, 1999.

The annual fuel savings can be converted into an emissions avoidance estimate. Below is a table with the avoidance figures based on our AC4400CW locomotive with the latest Tier Zero 7FDL engine. All values listed are in metric tons.

		HC	CO	NOx	PM
2001	Tier 0 Loco	292,000	780,000	6,871,000	182,000

Please note that this savings calculation is only an estimate and is not a performance guarantee. If I can be of further assistance please do not hesitate to contact me.

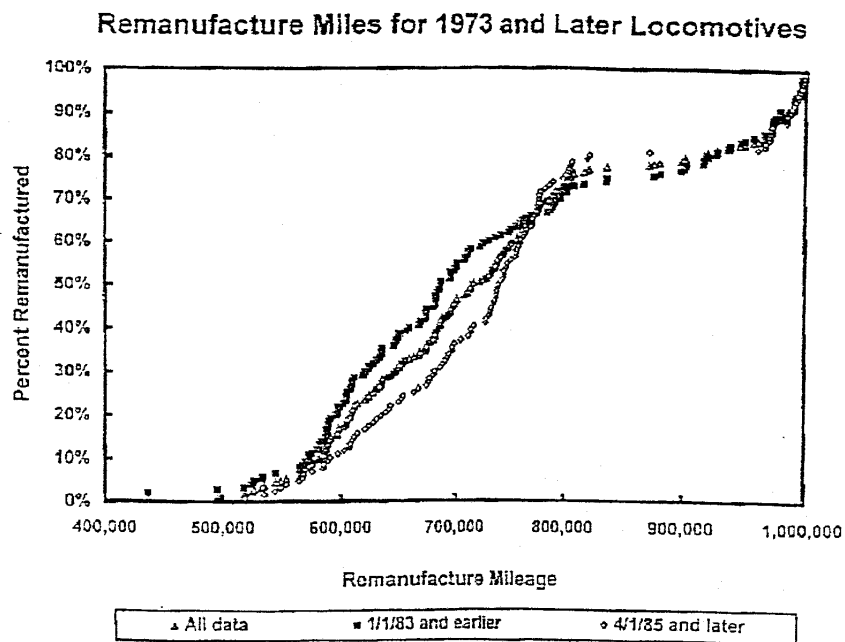
Sincerely:

Stephen Trier

APPENDICES

APPENDIX A

Locomotive Remanufacture Mileage Data From AAR, June 1996
(Data for Santa Fe Railway)



APPENDIX B

Locomotive Emission Data by Throttle Notch

(Note: this appendix not available in electronic version.)

APPENDIX C

Calculation of Baseline Locomotive Emission Rates

This appendix contains a numerical description of how EPA developed its baseline emission factors. The cycle-weighted emission factors listed here were calculated from the notch data in Appendix B using the respective line-haul or switch duty-cycle. Cycle-weighted horsepower (i.e., the average power used over the cycle) was also calculated. The emission factors were weighted by the product of number of locomotives in the fleet and the average power:

$$EF_{AVG} = \frac{\sum (No.)(HP)(EF)}{\sum (No.)(HP)}$$

These weighted average emission factors were multiplied by deterioration factors to be more representative of in-use emissions. The line-haul emissions were determined for two locomotive categories (pre-1991 and 1991-1995) because of the limits of the data set. The emission factors for these two categories were weighted together in the same manner as the individual emission factors.

Weighted Average Line-Haul Emissions

Model	Number in 1990 Fleet	Cycle-Wtd Power (hp)	HC g/bhp-hr	CO g/bhp-hr	NOx g/bhp-hr	PM g/bhp-hr
EMD 16-645E3	1562	853	0.48	1.85	13.64	0.29
EMD 20-645E3	723	1023	0.49	1.18	13.46	0.30
EMD 16-645E3B	2693	835	0.47	1.40	13.12	0.29
EMD 16-645F3	232	988	0.49	1.33	15.54	0.30
EMD 12-645F3B	6	769	0.35	1.17	11.52	0.25
EMD 16-645F3B	400	1073	0.33	0.63	15.23	0.25
EMD 12-710G3	2	807	0.36	0.90	10.55	0.25
EMD 16-710G3	537	1084	0.38	0.52	11.55	0.26
EMD 12-710G3A	17	846	0.15	1.09	10.75	0.25
EMD 16-710G3A	250	1086	0.21	2.30	11.04	0.25
GE 12 - 2500	843	686	0.48	2.12	10.32	0.26
GE 12 - 3000	145	819	0.45	1.73	10.56	0.24
GE 12 - 3300	0	860	0.32	1.68	10.75	0.24
GE 16 - 3000	801	839	0.73	2.44	11.35	0.41
GE 16 - 3600	451	1001	0.62	1.67	11.29	0.36
GE 16 - 4100	1029	1127	0.58	1.44	11.23	0.34
Weighted Average			0.49	1.53	12.53	0.30
Deterioration Factors			1.15	1.00	1.00	1.15
1990 and Earlier In-Use			0.57	1.53	12.53	0.35
GE	3000	1200	0.30	0.90	13.50	0.20
EMD	1500	1200	0.30	0.80	14.00	0.30
Weighted Average			0.30	0.87	13.67	0.23
Deterioration Factors			1.15	1.00	1.00	1.15
1991-1995 In-Use			0.35	0.87	13.70	0.27
Estimated In-Use Emission Factors for Entire 1995 Line-Haul Fleet:					HC	0.48
					CO	1.28
					NOx	13.0
					PM	0.32

Weighted Average Switch Emissions

Model	Number in 1990 Fleet	Cycle-Wtd Power (hp)	HC g/bhp-hr	CO g/bhp-hr	NOx g/bhp-hr	PM g/bhp-hr
EMD 16-567C	1279	159	1.25	2.13	17.27	0.40
EMD 12-645E	1216	160	0.76	1.71	17.39	0.38
EMD 16-645E	1763	212	0.74	1.72	17.55	0.38
Weighted Average			0.88	1.83	17.44	0.38
Deterioration Factors			1.15	1.00	1.00	1.15
In-Use Baseline			1.01	1.83	17.44	0.44
Estimated In-Use Emission Factors for Entire 1995 Line-Haul Fleet:					HC	1.01
					CO	1.83
					NOx	17.4
					PM	0.44

APPENDIX D

Locomotive Smoke Emissions

Table 25 (page D-2): SwRI Report for EPA, Emission Measurements - Locomotives, SwRI 5374-024

Table 12 (page D-3) Association of American Railroads, Locomotive Exhaust Emission Field Tests, AAR Report R-885

Table 28 (page D-4) Association of American Railroads, Locomotive Exhaust Emission Field Tests, AAR Report R-877

TABLE 25. SMOKE OPACITY TEST RESULTS

Unit	Date	Fuel	Smokemeter Position	Steady-State Smoke, % Opacity												
				LI	DS	Idle	N1	N2	N3	N4	N5	N6	N7	N8		
AT&SF601	2/9/95	EM-1880-F	Perpendicular	5	4	5	5	5	5	6	5	5	5	5		
	2/10/95		Diagonal	6	4	5	4	4	4	5	4	4	5	9		
BN 9457	4/10/95	EM-1902-F	Perpendicular		2	2	2	3	2	2	2	1	0	0		
	4/11/95		Diagonal		0	0	0	0	0	0	1	0	0	1		
	4/12/95	EM-1880-F	Diagonal		0	0	0	1	0	0	0	0	--*	--*		
	4/13/95		Perpendicular		1	1	2	2	2	2	2	2	1	2		
SP502	5/3/95	EM-1880-F	Perpendicular		11	14	9	9	17	14	12	11	10	9		
	5/4/95		Diagonal		9	12	5	7	15	12	8	5	3	2		
	5/5/95	EM-1902-F	Perpendicular		11	13	7	8	17	13	10	7	4	3		
	5/6/95		Diagonal		9	12	5	4	14	11	8	4	1	0		
AT&SF202	5/23/95	EM-1902-F	Perpendicular		2	2	2	3	4	3	4	4	3	3		
	5/24/95		Diagonal		2	2	3	4	3	2	2	1	1	1		
	5/24/95	EM-1880-F	Diagonal		1	2	2	3	3	2	3	3	2	2		
	5/25/95		Perpendicular		3	3	4	4	4	3	3	3	3	3		
NS 8842	5/29/95	EM-1902-F	Perpendicular	10	5	6	5	4	5	7	7	9	--*	--*		
	5/30/95		Diagonal	8	4	4	4	4	6	7	6	7	8	10		
	5/31/95	EM-1880-F	Diagonal	9	4	5	4	3	2	2	1	0	1			
	6/1/95		Perpendicular	10	4	5	4	4	3	4	4	3	3	3		
Unit	Date	Fuel	Smokemeter Position	Transient Smoke Maximum % Opacity During Throttle Notch Change												
				LI	DS	Idle	N1	N2	N3	N4	N5	N6	N7	N8		
AT&SF601	2/9/95	EM-1880-F	Perpendicular	12	12	15	22	36	13	19	17	10	9	8		
	2/10/95		Diagonal	13	13	11	32	40	13	16	17	10	10	12		
BN 9457	4/10/95	EM-1902-F	Perpendicular		7	3	5	6	9	8	8	11	4	2		
	4/11/95		Diagonal		1	0	1	1	0	3	2	2	1	2		
	4/12/95	EM-1880-F	Diagonal		3	1	2	3	3	3	1	8	--*	--*		
	4/13/95		Perpendicular		5	2	3	4	4	4	4	8	4	2		
SP502	5/3/95	EM-1880-F	Perpendicular		60	87	55	55	59	44	17	39	21	24		
	5/4/95		Diagonal		56	86	62	58	58	41	13	24	5	5		
	5/5/95	EM-1902-F	Perpendicular		26	71	56	60	58	40	16	19	7	6		
	5/6/95		Diagonal		43	76	61	56	60	41	14	14	4	3		
AT&SF202	5/23/95	EM-1902-F	Perpendicular		2	7	4	5	5	4	6	8	4	6		
	5/24/95		Diagonal		3	7	5	5	4	3	5	6	3	3		
	5/24/95	EM-1880-F	Diagonal		2	7	4	5	5	4	6	6	4	4		
	5/25/95		Perpendicular		3	7	5	6	5	4	5	6	5	5		
NS 8842	5/29/95	EM-1902-F	Perpendicular	18	5	14	21	36	12	14	15	12	--*	--*		
	5/30/95		Diagonal	14	8	6	21	61*	11	12	13	10	11	17		
	5/31/95	EM-1880-F	Diagonal	17	9	13	22	21	8	7	6	4	3	7		
	6/1/95		Perpendicular	16	10	10	23	33	13	11	10	7	5	6		
*bulb failure																
**heavy rain																

*bulb failure

**heavy rain

TABLE 12. STEADY-STATE SMOKE TEST RESULTS

Locomotive Model	Standard Timing	4° Retarded Timing	Increase in Maximum Opacity
	Maximum Steady State Smoke ^a (% Opacity)		(% Opacity)
EMD SD40-2 (E3B)			
UP 3808	30	3	0
UP 3953	9	15	6
UP 3938	12	21	9
UP 3959	8	12	4
UP 3228	5	6	1
GE C40-8			
UP 9108	17	34	17
UP 9113	25	33	8
UP 9126	35	55	20
UP 9133	28	51	23
EMD SD40-2 (E3)			
SP 8270	9	11	2
SP 7315	21	40	19
SP 8303	12	17	5
SP 7323	<5	<5	0
Note: a - Maximum steady-state smoke opacity in any notch during "UP" smoke test.			

TABLE 28. STEADY-STATE SMOKE TEST SUMMARY

Locomotive Unit Number	Model	Standard Timing	4° Retarded Timing	Increase in Maximum Opacity
		Maximum Steady-State Smoke (% Opacity) ^a		(% Opacity)
SP 2706 ^b	EMD MP15AC	7	8	1
SP 2754 ^b	EMD MP15AC	6	8	2
SP 2742 ^b	EMD MP15AC	8	16	8
SP 2720 ^b	EMD MP15AC	11	15	4
SP 2739 ^b	EMD MP15AC	10	23	13
Amtrak 514 ^c	GE DASH8-B32	10	10	0
Amtrak 229 ^c	EMD F40PH	11	11	0
Amtrak 806 ^c	GE AMD-103	9	14	5
CSX 8704	EMD SD60	10	12	2
SP 6344	EMD GP35	35	35	0
UP20	Republic RD20	<5	30	30
CSX 8709	EMD SD60	8	16	8
AT&SF 601	GE DASH9-44CW	5	11	6
SP 6344 ^d	EMD GP35	34	49	15
Note: a - Maximum steady-state smoke opacity in any notch during "UP" smoke cycle. b - Highest reading from either of the two exhaust stacks. c - Non-HEP d - Repeat testing of SP 6344.				

APPENDIX E

Compliance Margins for On-Highway Heavy-Duty Diesel Engines

In complying with engine emission standards, engine manufacturers typically strive to produce engines that emit at levels below the applicable standards. This compliance margin (i.e., the difference between the level of the standard and the engine's certification level or FEL) is used by the manufacturers to assure that factors such as testing, production variability or unexpected deterioration will not result in noncompliance. Since engines typically operate at emission levels below the standards, it is important to consider the engine's actual emissions, rather than the levels of the standards, when quantifying the emission benefits of regulations.

An analysis of actual compliance margins from on-highway heavy-duty diesel engine (HDDE) certification results was performed in order to estimate the actual locomotive emission levels that will result from the federal locomotive emission standards. HDDEs were chosen because they are similar in many ways to locomotive engines, and it is expected that locomotive engine manufacturers will use compliance strategies similar to those currently used for on-highway heavy-duty diesel engines.

The 1993 through 1995 model years were chosen for the analysis of compliance margins. The 1993 to 1994 transition represents a change in the particulate standard for HDDEs (from 0.25 to 0.10 g/bhp-hr) and could be seen as indicating what might happen in the case of previously unregulated locomotives coming under new emission standards. For the 1995 model year, the analysis was limited to those engine families which had been certified as of January 30, 1995. Although a few more 1995 HDDEs were certified, those included in this analysis represent the majority of 1995 HDDEs.

When determining what compliance margin to use for a given engine family, HDDE manufacturers take many factors into account. One of the most important factors is the expected potential for deterioration of critical emission control components. Until recently, HDDE manufacturers have met the applicable standards with modifications to the engine itself. However, due to the increasing stringency of the HDDE particulate standard there has been increasing use of oxidation catalysts on HDDEs. Given that exhaust aftertreatment technologies typically have higher rates of deterioration compared to engine technologies, it is likely that manufacturers would utilize different compliance strategies for engines with catalysts compared to engines without catalysts. For this reason only HDDEs which did not utilize exhaust aftertreatment were considered in the analysis of HDDE compliance margins.

In addition to excluding HDDEs with exhaust aftertreatment from the compliance margin analysis, engines certified to the urban bus standards were also excluded. Given that urban bus engines are required to meet more stringent

particulate standards than other HDDEs, they cannot be directly compared to other HDDEs and must be analyzed separately. Additionally, only two manufacturers currently certify urban bus engine families, and the total number of urban bus engine families is very small in relation to all HDDE families. In the emissions averaging, banking and trading program (ABT) urban bus engines constitute a separate class and cannot be averaged with other HDDEs. The situation of few engine families and an exclusive ABT class leads to manufacturers using unique compliance strategies for this class of HDDEs such as using a trap oxidizer on one family for particulate emissions well below the standard and using these credits to offset production of another family which emits well above the standard. These strategies lead to very few urban bus engine families with widely varying emissions which are not representative of HDDEs as a whole. Thus, urban bus engines are also excluded from this analysis.

The results of the analysis are summarized in Table E-1. NOx and particulate matter (PM) compliance margins were analyzed separately. Additionally, for each model year the engines were sorted according to HDDE subclass (light, medium and heavy) and according to whether the engine was certified to the applicable standards for NOx and PM or whether they were certified to a family emission limit (FEL) above or below the standard under the ABT program. The purpose of this sorting was to determine whether there are trends which should lead to the exclusion of particular groups of engines, as was done with aftertreatment-equipped and urban bus engines. As can be seen from Table E-1, neither the change in PM standards from the 1993 to the 1994 model year, nor the sorting according HDDE subclass and FEL yields any strong trends which would lead to excluding any of these groups from the analysis. In addition to analysis by model year, the average of all three model years is included in Table E-1.

Table E-1									
NOx and Particulate Compliance Margins of Heavy-Duty Diesel Engines ^{1,2}									
	1993		1994		1995		Average		
	NOx	PM	NOx	PM	NOx	PM	NOx	PM	Avg NOx+PM
NOx FEL<std	7.7	19.7	9.0	29.3	5.8	35.9	7.5	28.3	17.9
NOx FEL=std	7.7	19.3	8.2	17.1	8.5	20.1	8.1	18.8	13.1
NOx FEL>std	9.8	11.9	8.9	18.0	8.2	14.6	9.0	14.8	11.9
PM FEL<std	8.1	19.0	NA	NA	NA	NA	NA	NA	NA
PM FEL=std	7.5	19.1	6.1	18.5	8.8	23.5	7.5	20.4	14.0
PM FEL>std	7.3	17.7	9.4	18.3	7.4	20.9	8.0	19.0	13.5
Class=L	11.9	19.2	12.6	22.0	9.4	21.6	11.3	20.9	13.1
Class=M	6.8	16.1	9.1	12.0	10.1	16.1	8.7	14.7	11.7
Class=H	7.6	20.9	6.9	21.0	7.0	24.9	7.2	22.3	14.8
Total	7.8	18.9	8.3	18.4	8.1	22.0	8.1	19.8	14.0

1. Compliance margins expressed as a percentage of applicable family emission limit. Urban bus engines and engines utilizing exhaust aftertreatment excluded.
2. The NOx standard is 5.0 g/bhp-hr for all three model years. The PM standard is 0.25 g/bhp-hr for the 1993 model year and 0.10 g/bhp-hr for the 1994 and 1995 model years.

APPENDIX F

Supplementary Cost-Effectiveness Data

Year-by-Year Costs and Benefits

Tables F-1 and F-2 contain year-by-year costs and benefits for the locomotive standards rulemaking described in Section 7.3. (Note: Benefits are consistent with the uncorrected benefits of Chapter 6.) Table F-1 shows the costs and benefits in undiscounted form, while Table F-2 shows the year-by-year results discounted at an interest rate of 7 percent. (Note: Discounted benefits were calculated upon request by the Office of Management and Budget; they were not used by EPA during this rulemaking.) Summing the annual discounted costs yields a 41-year fleet wide cost of \$1.2 billion and emission reductions of 5.3 million tons of NO_x, 84,000 tons of HC, and 58,000 tons of PM. The resulting 41-year annualized fleetwide costs and emission reductions are \$89 million per year and 390,000 tons of NO_x, 6,000 tons of HC, and 4,000 tons of PM, respectively. A copy of the spreadsheet prepared for this 41-year cost and benefit analysis has been placed in the Public Docket for this rulemaking.

Marginal Cost Effectiveness

Tables F-3A through F-4B show the marginal cost effectiveness calculations described in Section 7.3. Tables F-3A and F-4A are based on the costs contained in the base case cost scenario shown in Table 7-4, while Tables F-3B and F-4B represent the same calculations made using the high range costs contained in Table 7-5. Tables F-3A through F-4B are shown in a format similar to the format of Tables 7-4 and 7-5. The format is similar in that economic information is shown separately for the same three sets of locomotives: 1) those originally manufactured 1973-2001; 2) those originally manufactured 2001-2004; and 3) those originally manufactured 2005-2040. Tables F-3A and F-3B show the how the cost effectiveness would have changed if the Tier 2 standards had not been finalized, so that newly manufactured locomotives would have continued to be certified to the Tier 1 after 2004. Tables F-4A and F-4B show the how the cost effectiveness would have changed if neither the Tier 1 nor the Tier 2 standards had been finalized, so that newly manufactured locomotives would have continued to be certified to the Tier 0 after 2001; the total costs from these tables are the marginal Tier 0 costs. Marginal costs for Tier 1 are calculated by subtracting the total costs of Table F-4A (F-4B) from the total costs of Table F-3A (F-3B). Marginal costs for Tier 2 are calculated by subtracting the total costs of Table F-3A (F-3B) from the total costs of Table 7-4 (7-5).

TABLE F-1				
UNDISCOUNTED COSTS AND BENEFITS OF RULEMAKING				
YEAR	COST	BENEFITS - Metric Tons		
		HC	NOx	PM
2000	\$14,752,491	0	11211	0
2001	\$48,065,475	0	45380	0
2002	\$109,864,672	44	110000	0
2003	\$116,983,557	87	171261	1
2004	\$124,777,069	127	231215	1
2005	\$68,250,344	1433	303684	928
2006	\$76,457,368	2614	359785	1765
2007	\$81,976,166	3637	393564	2525
2008	\$36,155,991	4611	411517	3178
2009	\$90,346,096	5440	427815	3764
2010	\$88,538,250	6277	448821	4354
2011	\$80,012,843	6663	456429	4622
2012	\$81,482,532	7185	466628	4986
2013	\$82,962,502	7703	476765	5346
2014	\$84,452,752	8216	486832	5703
2015	\$85,953,282	8696	496414	6036
2016	\$87,464,092	9171	505915	6365
2017	\$88,535,431	9640	514137	6690
2018	\$89,617,050	10104	522277	7011
2019	\$90,708,949	10562	530336	7327
2020	\$91,811,127	11016	538314	7640
2021	\$92,923,586	11463	546211	7948
2022	\$94,046,325	11906	554026	8252
2023	\$95,179,344	12343	561759	8553
2024	\$96,255,180	12774	569231	8849
2025	\$97,206,371	13200	576263	9141
2026	\$98,163,345	13621	583200	9428
2027	\$99,124,829	14036	590030	9712
2028	\$74,766,683	14444	596578	9992
2029	\$77,040,784	14847	603033	10267
2030	\$79,240,704	15257	609532	10544
2031	\$80,258,167	15641	615772	10801
2032	\$82,314,167	16019	621924	11054
2033	\$84,370,167	16393	627988	11303
2034	\$86,426,167	16762	633965	11549
2035	\$88,482,167	16967	637232	11678
2036	\$90,538,167	17092	638943	11750
2037	\$92,594,167	17346	641226	11918
2038	\$94,650,167	17593	643455	12080
2039	\$96,706,167	17833	645631	12236
2040	\$98,762,167	18065	647756	12387

TABLE F-2				
DISCOUNTED COSTS AND BENEFITS OF RULEMAKING				
YEAR	COST	BENEFITS - Metric Tons		
		HC	NOx	PM
2000	\$14,752,491	0	11211	0
2001	\$44,921,005	0	42878	0
2002	\$95,960,060	39	96078	0
2003	\$95,493,429	71	139800	1
2004	\$95,191,828	97	176393	1
2005	\$48,661,552	1021	216522	662
2006	\$50,946,773	1742	239740	1176
2007	\$51,050,636	2296	245092	1572
2008	\$50,143,571	2683	239506	1850
2009	\$49,142,290	2959	232703	2048
2010	\$45,008,357	3191	228158	2213
2011	\$38,013,525	3166	216846	2196
2012	\$36,179,219	3190	207188	2214
2013	\$34,426,489	3196	197840	2218
2014	\$32,752,233	3186	188802	2212
2015	\$31,153,425	3152	179923	2188
2016	\$29,627,114	3106	171371	2156
2017	\$28,028,050	3052	162763	2118
2018	\$26,514,451	2989	154523	2074
2019	\$25,081,780	2921	146642	2026
2020	\$23,725,740	2847	139111	1974
2021	\$22,442,262	2769	131917	1920
2022	\$21,227,494	2687	125051	1863
2023	\$20,077,786	2604	118501	1804
2024	\$18,976,383	2518	112222	1744
2025	\$17,910,194	2432	106176	1684
2026	\$16,903,286	2345	100424	1624
2027	\$15,952,195	2259	94954	1563
2028	\$11,245,075	2172	89727	1503
2029	\$10,829,070	2087	84764	1443
2030	\$10,409,623	2004	80072	1385
2031	\$9,853,536	1920	75600	1326
2032	\$9,444,820	1838	71360	1268
2033	\$9,047,409	1758	67342	1212
2034	\$8,661,574	1680	63536	1157
2035	\$8,287,500	1589	59665	1094
2036	\$7,925,300	1496	55930	1028
2037	\$7,575,021	1419	52458	975
2038	\$7,236,654	1345	49197	924
2039	\$6,910,140	1274	46134	874
2040	\$6,595,375	1206	43257	827

TABLE F-3A - MARGINAL COST-EFFECTIVENESS ANALYSIS (BASE CASE ANALYSIS WITHOUT TIER 2 STANDARDS)	
CATEGORY	TOTAL COSTS
TIER 0 LOCOMOTIVES (Model Years 1973-2001)	
INCREMENTAL COSTS:	
Initial Manufacture	\$470,446,480
Fuel consumption	\$435,742,226
Maintenance	\$217,159,792
TOTAL	\$1,123,348,498
NPV	\$584,926,672
TIER 1 LOCOMOTIVES (Model Years 2002-2004)	
INCREMENTAL COSTS:	
Initial Manufacture	\$102,890,062
Fuel consumption	\$79,754,324
Maintenance	\$32,013,080
TOTAL	\$214,657,466
NPV	\$132,572,277
TIER 1 LOCOMOTIVES (Model Years 2005-2040)	
INCREMENTAL COSTS:	
Initial Manufacture	\$644,639,666
Fuel consumption	\$593,307,704
Maintenance	\$78,433,920
TOTAL	\$1,316,381,289
NPV	\$435,028,487
TOTAL COSTS	\$2,654,387,253
NPV	\$1,152,527,435
TOTAL NO _x BENEFIT (Tons-M)	16,981,126
COST EFFECTIVENESS (\$/Ton)	\$156
NPV	\$66

TABLE F-1A - MARGINAL COST-EFFECTIVENESS ANALYSIS (BASE CASE ANALYSIS WITHOUT TIER 1 OR TIER 2 STANDARDS)	
CATEGORY	TOTAL COSTS
TIER 0 LOCOMOTIVES (Model Years 1973-2001)	
INCREMENTAL COSTS:	
Initial Manufacture	\$470,446,480
Fuel consumption	\$435,742,226
Maintenance	\$217,159,792
TOTAL	\$1,123,348,498
NPV	\$584,926,672
TIER 0 LOCOMOTIVES (Model Years 2002-2004)	
INCREMENTAL COSTS:	
Initial Manufacture	\$42,648,927
Fuel consumption	\$79,754,324
Maintenance	\$12,392,160
TOTAL	\$134,795,412
NPV	\$73,219,144
TIER 0 LOCOMOTIVES (Model Years 2005-2040)	
INCREMENTAL COSTS:	
Initial Manufacture	\$492,535,877
Fuel consumption	\$593,307,704
Maintenance	\$78,433,920
TOTAL	\$1,164,277,501
NPV	\$374,170,736
TOTAL COSTS	\$2,422,421,411
NPV	\$1,032,316,552
TOTAL NO _x BENEFIT (Tons-M)	12,809,089
COST EFFECTIVENESS (\$/Ton)	\$189
NPV	\$81

TABLE F-3B - MARGINAL COST-EFFECTIVENESS ANALYSIS (HIGH RANGE ANALYSIS WITHOUT TIER 2 STANDARDS)	
CATEGORY	TOTAL COSTS
TIER 0 LOCOMOTIVES (Model Years 1973-2001)	
INCREMENTAL COSTS:	
Initial Manufacture	\$502,544,778
Fuel consumption	\$871,484,452
Maintenance	\$217,159,792
TOTAL	\$1,591,189,022
NPV	\$782,324,482
TIER 1 LOCOMOTIVES (Model Years 2002-2004)	
INCREMENTAL COSTS:	
Initial Manufacture	\$134,317,119
Fuel consumption	\$159,508,649
Maintenance	\$32,013,080
TOTAL	\$325,838,848
NPV	\$191,771,133
TIER 1 LOCOMOTIVES (Model Years 2005-2040)	
INCREMENTAL COSTS:	
Initial Manufacture	\$664,026,920
Fuel consumption	\$1,186,615,407
Maintenance	\$78,433,920
TOTAL	\$1,929,076,247
NPV	\$600,514,176
TOTAL COSTS	\$3,846,104,116
NPV	\$1,574,609,791
TOTAL NO _x BENEFIT (Tons-M)	16,981,126
COST EFFECTIVENESS (\$/Ton)	\$226
NPV	\$93

TABLE F-4B - MARGINAL COST-EFFECTIVENESS ANALYSIS (HIGH RANGE ANALYSIS WITHOUT TIER 1 OR TIER 2 STANDARDS)	
CATEGORY	TOTAL COSTS
TIER 0 LOCOMOTIVES (Model Years 1973-2001)	
INCREMENTAL COSTS:	
Initial Manufacture	\$470,446,480
Fuel consumption	\$871,484,452
Maintenance	\$217,159,792
TOTAL	\$1,559,090,724
NPV	\$759,309,513
TIER 0 LOCOMOTIVES (Model Years 2002-2004)	
INCREMENTAL COSTS:	
Initial Manufacture	\$45,900,000
Fuel consumption	\$159,508,649
Maintenance	\$12,392,160
TOTAL	\$217,800,809
NPV	\$107,770,438
TIER 0 LOCOMOTIVES (Model Years 2005-2040)	
INCREMENTAL COSTS:	
Initial Manufacture	\$530,081,249
Fuel consumption	\$1,186,615,407
Maintenance	\$78,433,920
TOTAL	\$1,795,130,576
NPV	\$546,921,611
TOTAL COSTS	\$3,572,022,108
NPV	\$1,414,001,562
TOTAL NO _x BENEFIT (Tons-M)	12,809,089
COST EFFECTIVENESS (\$/Ton)	\$279
NPV	\$110

APPENDIX G

Results of SwRI Testing for EPA

From "Emission Measurements - Locomotives"
SwRI 5374-024, August 1995

**TABLE 23. AVERAGE DUTY-CYCLE WEIGHTED EXHAUST EMISSIONS
USING LOW-SULFUR CERTIFICATION DIESEL FUEL**

Locomotive	Duty Cycle	g/hp-hr ^a					
		HC	CO	NOx	PM #1 ^a	PM #2 ^b	PM #3 ^c
AT&SF No. 601 GE DASH 9-44CW	EPA Freight	0.21	1.10	10.84	NA	0.07	0.08
	EPA Switcher	0.40	1.63	12.23	NA	0.13	0.15
	AAR 3-Mode	0.18	1.28	10.80	0.05	0.06	0.07
BN No. 9457 EMD SD70MAC	EPA Freight	0.31	0.60	13.28	NA	0.22	0.24
	EPA Switcher	0.44	0.68	13.62	NA	0.22	0.24
	AAR 3-Mode	0.28	0.57	13.01	0.23	0.21	0.23
SP No. 502 MK 5000C	EPA Freight	0.51	1.07	15.46	NA	0.16	0.19
	EPA Switcher	0.81	1.62	20.88	NA	0.39	0.45
	AAR 3-Mode	0.43	0.99	14.59	0.11	0.11	0.13
AT&SF No. 202 EMD SD75M	EPA Freight	0.28	0.94	13.23	NA	0.24	0.30
	EPA Switcher	0.43	0.88	15.19	NA	0.25	0.31
	AAR 3-Mode	0.28	0.87	13.05	0.23	0.24	0.30
NS No. 8842 GE DASH 9-40C	EPA Freight	0.29	0.85	14.07	NA	0.11	0.15
	EPA Switcher	0.52	1.33	14.88	NA	0.21	0.28
	AAR 3-Mode	0.27	0.87	14.38	0.11	0.11	0.14
Notes: a - PM sampling system #1 - 30 cm/s face velocity and 30-minute maximum sampling time. b - PM sampling system #2 - 70 cm/s face velocity and 15-minute maximum sampling time. c - PM sampling system #3 - 70 cm/s face velocity and 5-minute maximum sampling time.							

**TABLE 24. AVERAGE DUTY-CYCLE WEIGHTED EXHAUST EMISSIONS
USING HIGH-SULFUR DIESEL FUEL**

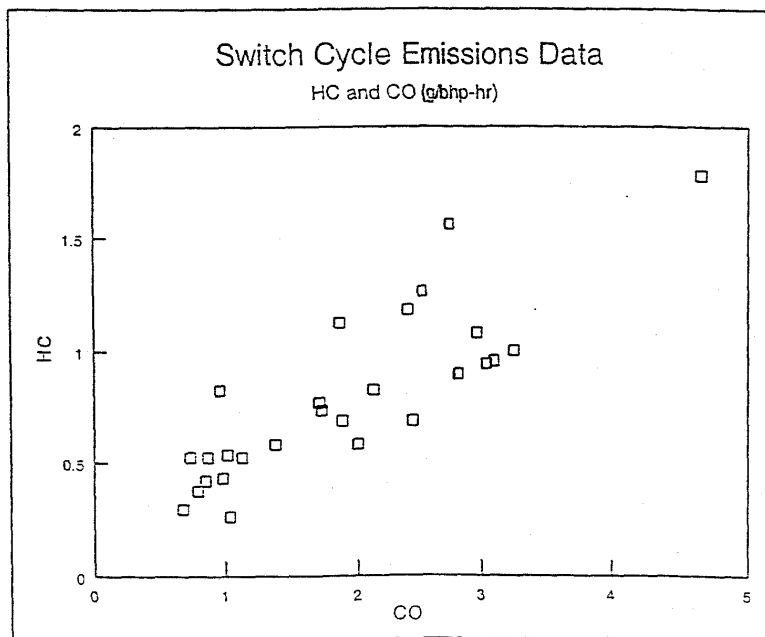
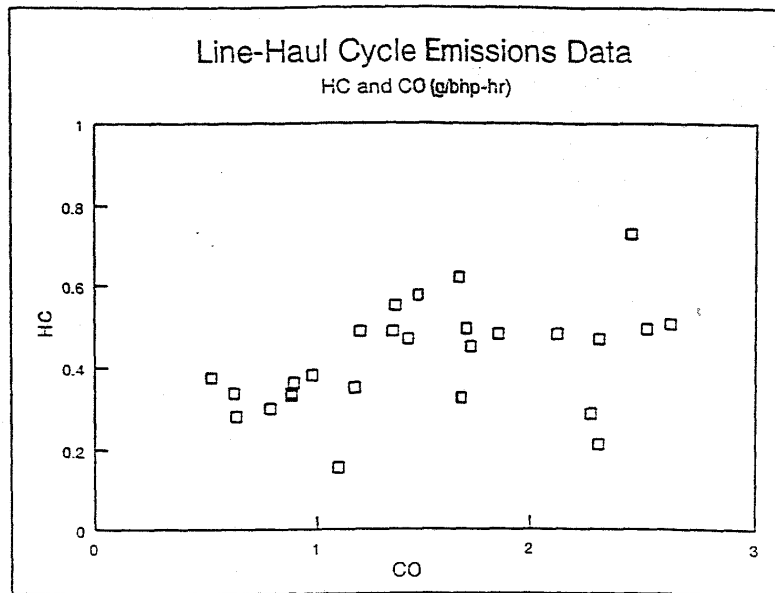
Locomotive	Duty Cycle	g/hp-hr ^a					
		HC	CO	NOx	PM #1 ^a	PM #2 ^b	PM #3 ^c
AT&SF No. 601 GE DASH 9-44CW	EPA Freight	***	***	***	***	***	***
	EPA Switcher	***	***	***	***	***	***
	AAR 3-Mode	***	***	***	***	***	***
BN No. 9457 EMD SD70MAC	EPA Freight	0.28	0.64	14.19	NA	0.29	0.30
	EPA Switcher	0.38	0.78	14.80	NA	0.29	0.30
	AAR 3-Mode	0.25	0.63	13.72	0.28	0.28	0.30
SP No. 502 MK 5000C	EPA Freight	0.54	1.09	15.86	NA	0.24	0.27
	EPA Switcher	0.90	1.66	21.33	NA	0.46	0.55
	AAR 3-Mode	0.45	1.00	14.96	0.18	0.19	0.22
AT&SF No. 202 EMD SD75M	EPA Freight	0.33	0.88	13.79	NA	0.29	0.35
	EPA Switcher	0.52	0.86	15.75	NA	0.32	0.39
	AAR 3-Mode	0.31	0.79	13.48	0.28	0.29	0.34
NS No. 8842 GE DASH 9-40C	EPA Freight	0.34	0.89	15.01	NA	0.19	0.22
	EPA Switcher	0.58	1.38	15.80	NA	0.27	0.33
	AAR 3-Mode	0.32	0.92	15.32	0.18	0.19	0.21
Notes: a - PM sampling system #1 - 30 cm/s face velocity and 30-minute maximum sampling time. b - PM sampling system #2 - 70 cm/s face velocity and 15-minute maximum sampling time. c - PM sampling system #3 - 70 cm/s face velocity and 5-minute maximum sampling time. *** - No tests were conducted on AT&SF No. 601 using high-sulfur fuel.							

APPENDIX H

Graphical HC and CO Data:

Numerical Data are in Appendices B and C
NO_x and PM Data are in Chapter 4

(Note: Not all of the data presented here or in Figures 4-2 and 4-3 were used in the baseline emission analysis; and thus, not all the data in this appendix are shown in Appendices B and C.)



APPENDIX I

Environmental Analysis

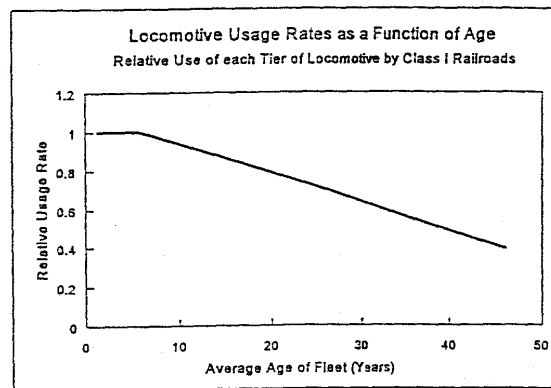
This appendix contains the original uncorrected environmental analysis. See Chapter 6 for details, and Appendix O for corrected tables.

(Note: complete appendix not available in electronic version.)

The figure below shows the relationship between relative usage rate and average fleet age assumed by EPA for Class I line-haul locomotives. It is based on the following assumptions:

(1) That each individual newly manufactured locomotive is used to the maximum extent possible for the first 10 years of its service life. This means that this maximum usage rate (hours of use per year) applies to new Tier 1 or Tier 2 fleets for the first 10 years of production, which corresponds to an average fleet age of up to 5.5 years.

(2) That after this point, the relative usage rate decreases linearly with average fleet age such that the usage rate for a fleet with an average age of 40 years would be 50 percent of the usage rate of a newly manufactured locomotive.



This table shows the projected marginal NOx benefits of the Tier 0, Tier 1, and Tier 2 standards in the columns labeled "Tier 0", "Tier 1", and "Tier 2", respectively. The column labeled "All Tiers" shows the total projected NOx benefits of the entire program (as finalized) consistent with Chapter 6. The column labeled "Tiers 0&1" shows the total projected NOx benefits of the program without the Tier 2 standards (i.e., assuming that the Tier 1 standards continue to apply to newly manufactured locomotives after 2004). The marginal benefits of the Tier 1 and Tier 2 standards are calculated from the first three columns.

Marginal NOx Benefit Analysis (Metric Tons)					
Year	All Tiers	Tiers 0 & 1	Tier 0	Tier 1	Tier 2
1999	0	0	0	0	0
2000	11211	11211	10906	305	0
2001	45880	45880	44631	1249	0
2002	110000	110000	100363	9637	0
2003	171281	171281	153538	17723	0
2004	231215	231215	205959	25256	0
2005	303684	293795	257207	36573	5899
2006	359785	340943	294403	45540	18842
2007	392564	366205	311455	55149	26959
2008	411517	377574	315551	62022	33943
2009	427815	397614	319427	68187	40201
2010	448821	402324	327525	74798	46497
2011	458429	407056	329417	77650	49363
2012	466628	413384	331665	81718	53244
2013	475785	419673	333928	85745	57092
2014	486832	425928	336200	89728	60904
2015	496414	431954	339485	93469	64460
2016	505915	437943	340781	97162	67972
2017	514137	442697	341923	100773	71440
2018	522277	447413	343077	104326	74864
2019	530336	452092	344242	107849	78244
2020	538314	456734	345419	111314	81580
2021	546211	461338	346608	114730	84872
2022	554026	465905	347809	118097	88120
2023	561759	470435	349021	121414	91324
2024	569231	474748	350069	124678	94484
2025	576293	478663	350780	127883	97599
2026	582200	482530	351491	131039	100670
2027	589030	486333	352202	134131	103697
2028	596578	489899	352912	136986	106680
2029	603033	493415	353623	139792	109618
2030	609532	496961	354334	142527	112571
2031	615772	500460	355044	145415	115312
2032	621924	503912	355755	148157	118012
2033	627988	507318	356466	150852	120670
2034	633965	510678	357177	153502	123287
2035	637232	512575	357887	154888	124657
2036	639943	513527	358351	155166	125416
2037	641225	514018	358351	155656	127208
2038	643455	514520	358351	156158	128935
2039	645631	515035	358351	156674	130586
2040	647755	515563	358351	157202	132199
Total	20052552	16581126	12809089	4172037	3071426

APPENDIX J

Terms and Abbreviations Used in the Rulemaking

Terms Used in the Rulemaking

Aftercooling - (see "charge air cooling")

Baseline - relating to uncontrolled locomotives.

Charge air cooling - an engine technology (for turbocharged or supercharged engines) that reduces NOx emissions by lowering combustion temperatures. Can also improve power output.

Class I railroads - the largest railroads in the U.S., based on annual revenue, as defined by the U.S. Surface Transportation Board in 49 CFR Chapter X. Class I railroads comprise about 90 percent of the railroad industry.

Class II and III railroads - small railroads, as defined by the U.S. Surface Transportation Board in 49 CFR Chapter X.

Commuter railroad - a passenger railroad that operates within a single metropolitan area, using diesel-powered locomotives.

Compliance margin - the degree to which a locomotive's emissions are below the applicable standard. Compliance margins are expressed as percent of the standard, so that a ten percent compliance margin for the Tier 0 NOx standard (9.5 g/bhp-hr) would be 0.95 g/bhp-hr.

Consist - a series of two or more locomotives pulling the same train. Railroads use more than one locomotive in a consist when they need more power to pull the train than can be supplied by a single locomotive. The total amount of power need is determined by the total weight of the train and the steepest grade that it must climb.

Diesel-electric locomotive - the standard type of locomotive in the U.S., it is a locomotive that uses a diesel engine to power electrical traction motors connected to the wheels.

Duty-cycle - a description of the amount of time a typical locomotive spends in each throttle notch, expressed as percent of total time in use.

Dynamic brake - a means of slowing a train by using the traction motors as generators, effectively converting the momentum of the train to electrical energy which is dissipated as heat.

Emission inventory - an emission total for a given pollutant and a given class of source, usually expressed as tons of emissions per year.

Four-stroke - relating to a type of engine that uses four piston strokes per combustion event.

Freshly manufactured - newly manufactured (and not yet remanufactured).

Grams per brake horsepower hour - the ratio of the mass of emissions from an engine to the amount of power produced by the engine at the same time. Use of the word "brake" in this context indicates that the power includes power supplied to accessories, in addition to the power available for propulsion. One gram per brake horsepower-hour is equal 0.7457 grams per kilowatt-hour.

Hotel power - electrical power supplied by the engine for use in passenger cars.

Injection timing - the time at which fuel is injected into the engine for combustion. Retarding the timing of a diesel engine (i.e., delaying the point at which the fuel is injected into the cylinder) reduces NOx emissions, but can increase PM emissions, smoke, and fuel consumption. Advancing the timing (i.e., injecting the fuel earlier) can have the opposite effects.

Insular railroad - an industrial facility that uses locomotives to move rail cars short distances on its own property. Locomotives used in this way usually have very low power ratings, and use very little fuel each year.

Line-haul - relating to the movement of trains across reasonably long distances. Most railroad operations are line-haul operations.

Local railroad - a railroad that operates within a very limited geographic range. Local railroad is roughly equivalent to Class III railroad.

Lugging - reducing the speed of an engine by increasing the engine load.

Megawatt-hour - unit of work equivalent to the total work perform in one hour at a constant power rate of one megawatt. One megawatt-hour is equal to 1341 horsepower-hours.

Net present value - an economic term used to account for the time value of money.

Notch - (see "throttle notch")

Particulates or particulate matter - very small solid particles emitted by engines and other sources. Particulates are formed by incomplete combustion, and are often related to visible smoke. Particulates from diesel engines are typically a few microns in diameter, or smaller.

Power assembly - a cylinder of an engine and related components that are detachable from the engine as a single system.

Rated horsepower - the maximum power out of a locomotive engine.

Regional railroad - a railroad that operates within a moderate geographic range. Regional railroad is roughly equivalent to Class II railroad.

Remanufacture - to thoroughly overhaul (or remanufacture) an engine, such that it is functionally equivalent to its original condition (or better).

Roots-blower - a mechanical blower that is used to force air into an engine for combustion. A roots-blower operates at much lower pressures than turbochargers and superchargers.

Service life - the entire period during which a locomotive is in service, from the time it is manufactured, until it is scrapped. The service life of a locomotive is typically about 40 years.

Switch - relating to movement of railroad cars over short distances, usually within a switch yard. Most switch locomotives have rated power of less than 2000 horsepower.

Throttle notch - a discrete power setting of a locomotive throttle. Most locomotives have eight throttle notches for propulsion, plus notches for dynamic brake and idle.

Train - a series of rail cars and locomotives. Individual locomotives are not trains.

Truck - the part of a locomotive that contains the traction motors, axles and wheels. (Note: the term truck is also used in this document to refer to large highway vehicles.)

Turbocharger - a turbine device that uses energy from exhaust gases to compress intake air.

Two-stroke - relating to a type of engine that uses two piston strokes per combustion event.

Upgrade - the process of converting an uncontrolled locomotive that was built before 1973 (and therefore not subject to these regulations) into a locomotive that complies with the Tier 0 standards. Upgrading is optional.

Useful life - the period (expressed as MW-hrs of work performed by the engine) during which a locomotive is designed to be properly functioning with respect to power out, reliability and fuel consumption. These regulations require that locomotives also comply with emission standards during this period. A typical useful life period is about six years.

Yard - (see "switch")

Abbreviations Used in the Rulemaking

AAR - Association of American Railroads
ABT - averaging, banking and trading
ASLRA - American Short Line Railroad Association
ATSF - Atchison, Topeka, and Santa Fe Railway
BN - Burlington Northern Railroad
BNSF - Burlington Northern Santa Fe Railway (formerly BN and ATSF)
CFR - Code of Federal Regulations
CSX - CSX Transportation
DOE - U.S. Department of Energy
EF&EE - Engine, Fuel, and Emission Engineering, Inc.
EGR - exhaust gas recirculation
EMA - Engine Manufacturers Association
EMD (or EMD-GM) - Electro-Motive Division of General Motors
EPA - Environmental Protection Agency
FPI - first price increase
FRA - Federal Railroad Administration
FTP - Federal Test Procedure
GE or GETS - General Electric Transportation Systems
g/bhp-hr - grams per brake horsepower hour
HC - hydrocarbons
HFID - heated flame ionization detector
HP - horsepower
kW - kilowatt
MW-hr - megawatt-hour
OEM - original equipment manufacturer
NDIR - nondispersive infrared detector
NO_x - oxides of nitrogen
NPV - net present value
PLT - production line testing
PM - particulate matter
PM-10 - particulate matter in the size range of 0 to 10 microns

RSD - Regulatory Support Document
SAE - Society of Automotive Engineers
SCR - selective catalytic reduction
SF - (see ATSF)
SO_x - oxides of sulfur
STB - Surface Transportation Board
SwRI - Southwest Research Institute
UP - Union Pacific Railroad
VGT - variable geometry turbocharger

APPENDIX K

Calculation of Weighting Factors for ABT Credits

The ABT program requires that locomotives certified to an FEL other than the applicable standard be recertified to that FEL at all subsequent remanufactures. The result of this requirement is that credit calculations are based on the total emissions of that locomotive for its remaining service life. Thus, in order to allow ABT credits generated by remanufactured locomotives to be used by freshly manufactured locomotives (and vice versa), it is necessary to prorate emission credits. For simplicity, the prorating factors are assumed to be a function of locomotive age. These factors, which are shown in the table, are the estimated fraction of the service life that is remaining for a locomotive.

These factors were calculated assuming that a typical locomotive remains in service for 40 years, and is remanufactured 6 times. This means that a typical locomotive will experience 7 useful lives during its service life. Due to the fact that a locomotive's usage rate (MW-hrs per year) typically declines with age, the remanufacturing interval in terms of years is expected to change with locomotive age. For this analysis, developed an assumed remanufacture schedule, based on a typical locomotive. During the first 12 years, a locomotive is assumed to be remanufactured every 4 years (after 4, 8, and 12 years). During the next 12 years, a locomotive is assumed to be remanufactured every 6 years (at 18 and 24 years). A locomotive is assumed to be remanufactured once more at 32 years, and scrapped at 40 years. Each one of these points represents $1/7$ of the locomotive's service life. For example, at 12 years, which is assumed to be the point at which the locomotive needs to be remanufactured for the third time, a locomotive is assumed to have expended $3/7$ of its service life and have $4/7$ (0.571) of its service life remaining. Any locomotive that is 32 or more years old is assumed to be in its final useful life, and is therefore assumed to have $1/7$ (0.143) of its service life remaining at the point of its remanufacture.

Determination of Fractional Service Life Remaining (F) for ABT Calculations			
Age	F	Age	F
1	0.964	17	0.452
2	0.929	18	0.429
3	0.893	19	0.405
4	0.857	20	0.381
5	0.821	21	0.357
6	0.786	22	0.333
7	0.750	23	0.310
8	0.714	24	0.286
9	0.679	25	0.268
10	0.643	26	0.250
11	0.607	27	0.232
12	0.571	28	0.214
13	0.548	29	0.196
14	0.524	30	0.179
15	0.500	31	0.161
16	0.476	32	0.143

APPENDIX L

Exclusion of Pre-1973 Locomotives

Locomotives originally manufactured prior to 1973 are excluded from the regulations, unless these units undergo certain modifications resulting in post-1972 configurations. EPA is not including pre-1973 locomotives in the regulations for the following reasons: First, the number of locomotives in these subgroups is small and utilization of individual locomotives is generally low. As a result, contributions to the national emission inventory are low. Second, technologies for reducing emissions from these "old" units either do not exist in a form that could be applied to the locomotives, or the cost of applying available technology would greatly exceed the value of the locomotive.

In developing a description for "old" locomotives which would not be included in the final rule, EPA sought to identify points either in engine design or in the sourcing of components which could lead to substantial technical problems or high costs in achieving compliance. However, to achieve the greatest benefit from the regulations, EPA sought to identify a date which would allow for the inclusion of a significant portion of the national locomotive fleet at the time that standards became effective. To avoid the potential for establishing unequal burdens between railroads as a function of the original manufacturer of the locomotives in their fleets, EPA decided to use a single dividing line for all locomotives. As a result of reviews of dates at which either design changes or the sourcing for major parts occurred, EPA identified the following: EMD introduced its 645 series of engines in 1966, and continued this series into the 1980s. GE changed design and sourcing for turbochargers, fuel injection pumps, and fuel injectors at the start of 1973. In mid-1983 GE again changed sourcing for fuel injection pumps, and in mid 1986 again changed sourcing for fuel injectors. The results of the review lead EPA to select January 1, 1973 as the date of original manufacture for separation between included and excluded locomotives. Since this date precedes the effective date of the standards by 27 years, a significant fraction of the existing fleet of locomotives will be included in the regulation. Pre-1973 engines still in operation by the year 2000 will be almost exclusively used by Class II and III railroads or for switching operations. They will therefore have relatively low usage and emissions rates when expressed as grams per year. Since benefits from emission control could be low, expressed as an annual mass of emissions, and the costs of control high, exclusion of these locomotives from the regulation appears to be appropriate.

APPENDIX M

NOx Concentrations as a Function of Test Sequence

This appendix contains continuous traces of NOx emissions provided by AAR, for locomotives manufactured by both GE and EMD, measured under different test sequences. Starting with the engine at idle, NOx concentration in the exhaust was measured continuously as engine power was increased to full power and returned to idle.

Figure M-1

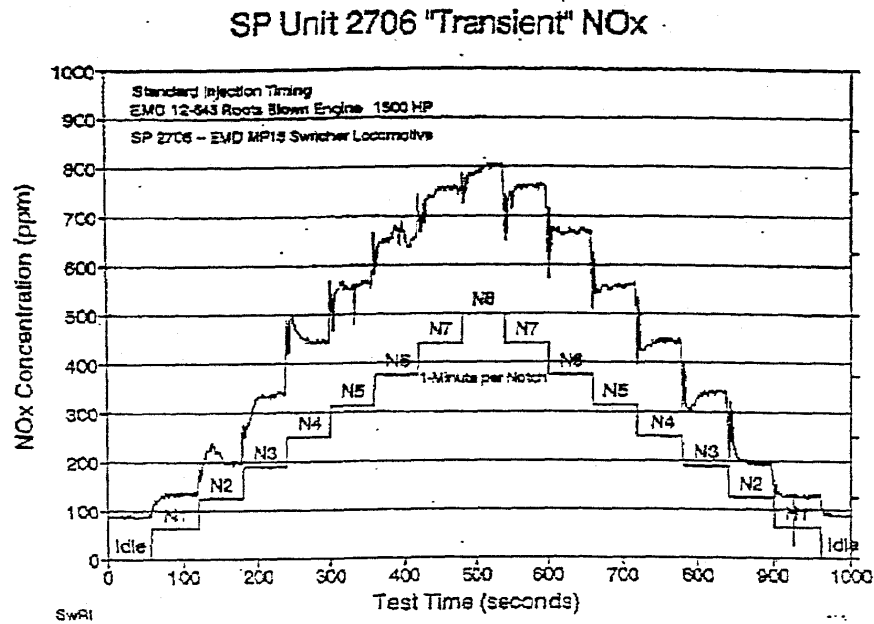


Figure M-2

Amtrak Unit 514 "Transient" NOx

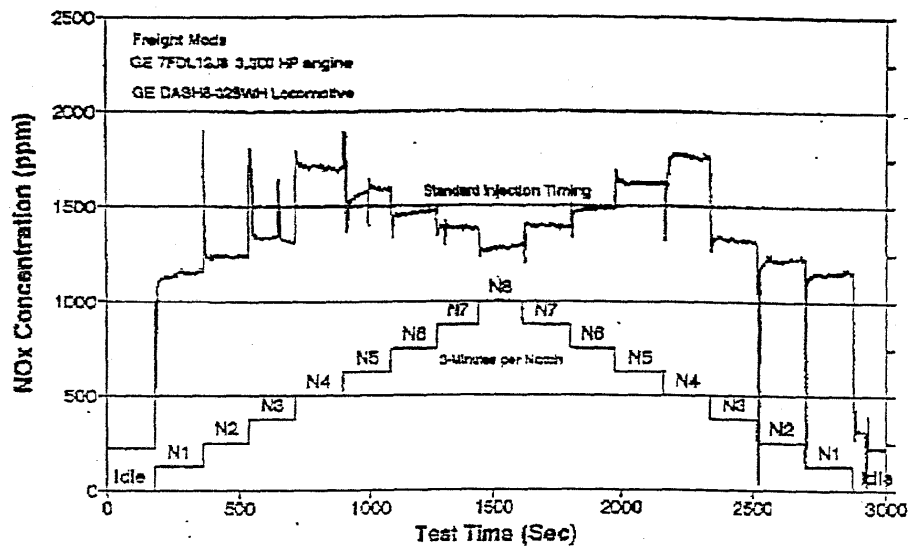


Figure M-3

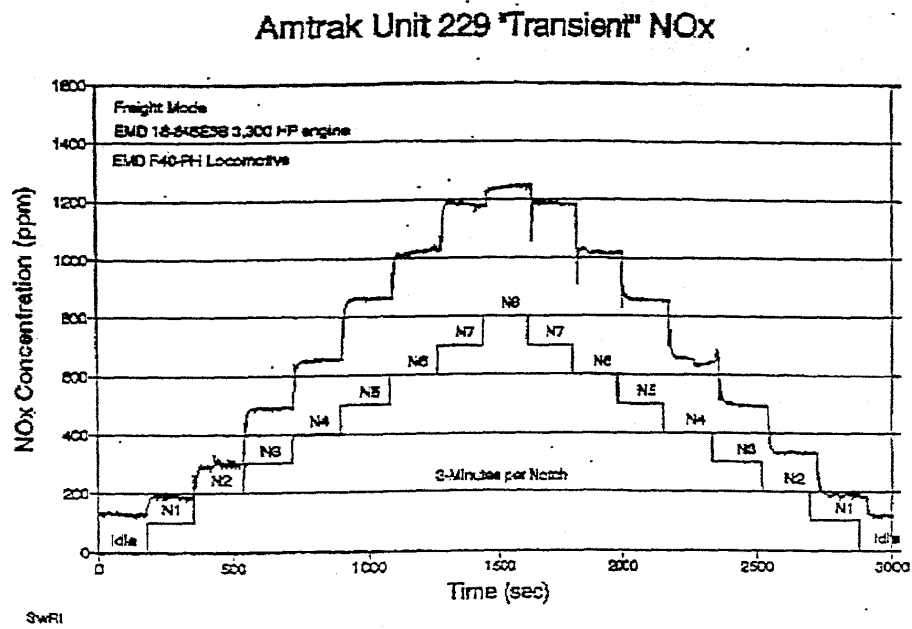
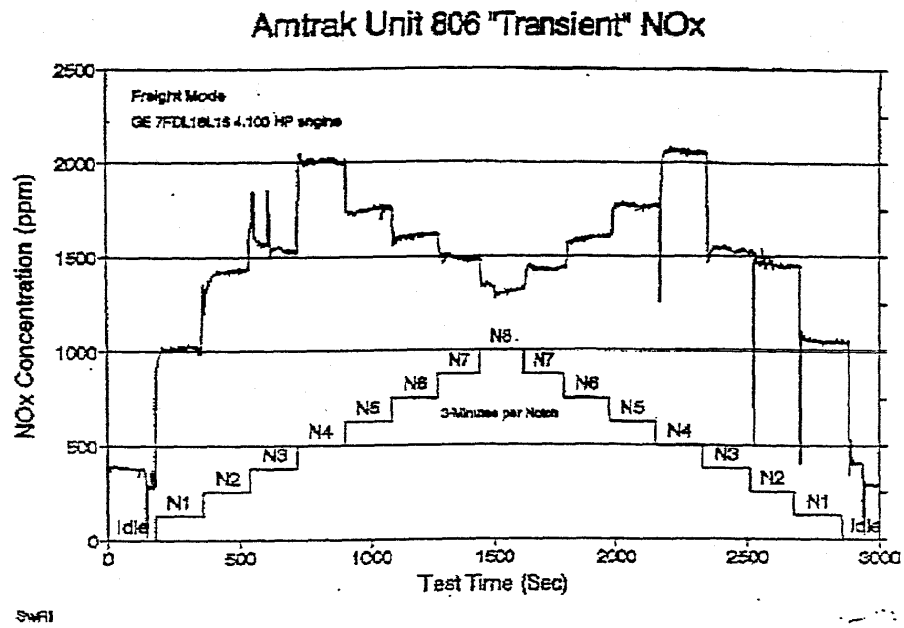


Figure M-4



APPENDIX N

1995 Emissions Inventory Data

TABLE N-1					
Pollutant	Emissions* (Thousand Metric Tons per Year)			Percent of Total	Percent of Mobile Source
	Total	Mobile Source	Locomotives		
HC	20786	7596	42	0.20%	0.56%
CO	83726	67496	108	0.13%	0.16%
NO _x	19799	9637	1093	5.52%	11.34%
PM-10	38760	634	27	0.07%	4.25%

* Total and Mobile Source emissions from 1996 "National Air Pollutant Emission Trends, 1900-1995" EPA-454/R-96-007; Locomotive emissions from this document.

APPENDIX O

Corrections to Environmental Analysis

(Note: this appendix is not entirely available in electronic version.)

This appendix contains corrections to the environmental impacts analysis. The corrections are described below, followed by corrected versions of the "Passenger Locomotives", "Class I Line-Haul Locomotives", "All Locomotives", and "Fleet Average Emission Factors" tables of Appendix I. These corrections have a minimal effect on the projection of total benefits, and are presented here only for the purpose of completeness. The tables found in Chapter 6 and Appendix I are unchanged from the December 1997 version of this document.

Correction #1 - Delay of Tier 0 standards for passenger locomotives

The original passenger table showed the Tier 0 standards taking effect in 2002, instead of 2007 as was specified in the regulations. This correction has an effect on emission projections only for years 2002-2010.

Correction #2 - Line-haul remanufacturing and retirement schedule

The original Class I line-haul table was not consistent with the description of the assumptions made in the text regarding the remanufacturing and retirement of locomotives. The table on the next page shows the correct schedule in greater detail than was presented in the December 1997 version of this document.

Summary of Corrected Remanufacturing and Retirement Schedule During the Period 2000-2010						
Year	Uncontrolled Locomotives Remanufactured into Tier 0 Configuration	Uncontrolled Locomotives that are Retired from Service	Newly Manufactured Uncontrolled Locomotives	Newly Manufactured Tier 0 Locomotives	Total Number of Uncontrolled Locomotives	Total Number of Tier 0 Locomotives
1999					16500	0
2000	500	100	300	100	16200	600
2001	1600	100	100	300	14600	2500
2002	2250	400			11950	4750
2003	2250	400			9300	7000
2004	2550	400			6350	9550
2005	2350	400			3600	11900
2006	1750	400			1450	13650
2007	650	400			400	14300
2008		300			100	14300
2009		100			0	14300
2010					0	14300

Notes: This table accounts for the projection of 300 pre-1973 locomotives being remanufactured into Tier 0 configurations by adding 50 locomotives to the second column for years 2002-2007.

This table properly accounts for the new production of uncontrolled locomotives in 2000 and 2001, and their first remanufacture into complying configurations in 2004 and 2005.

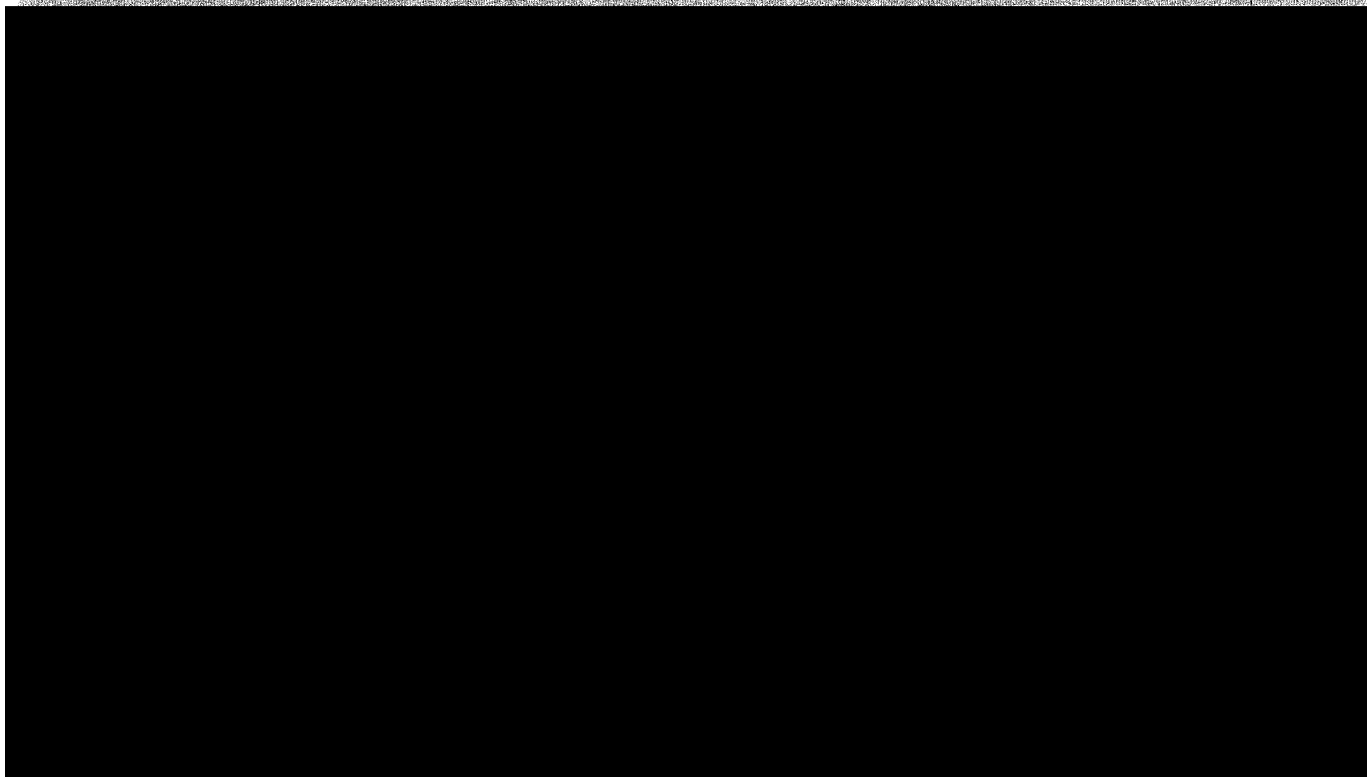
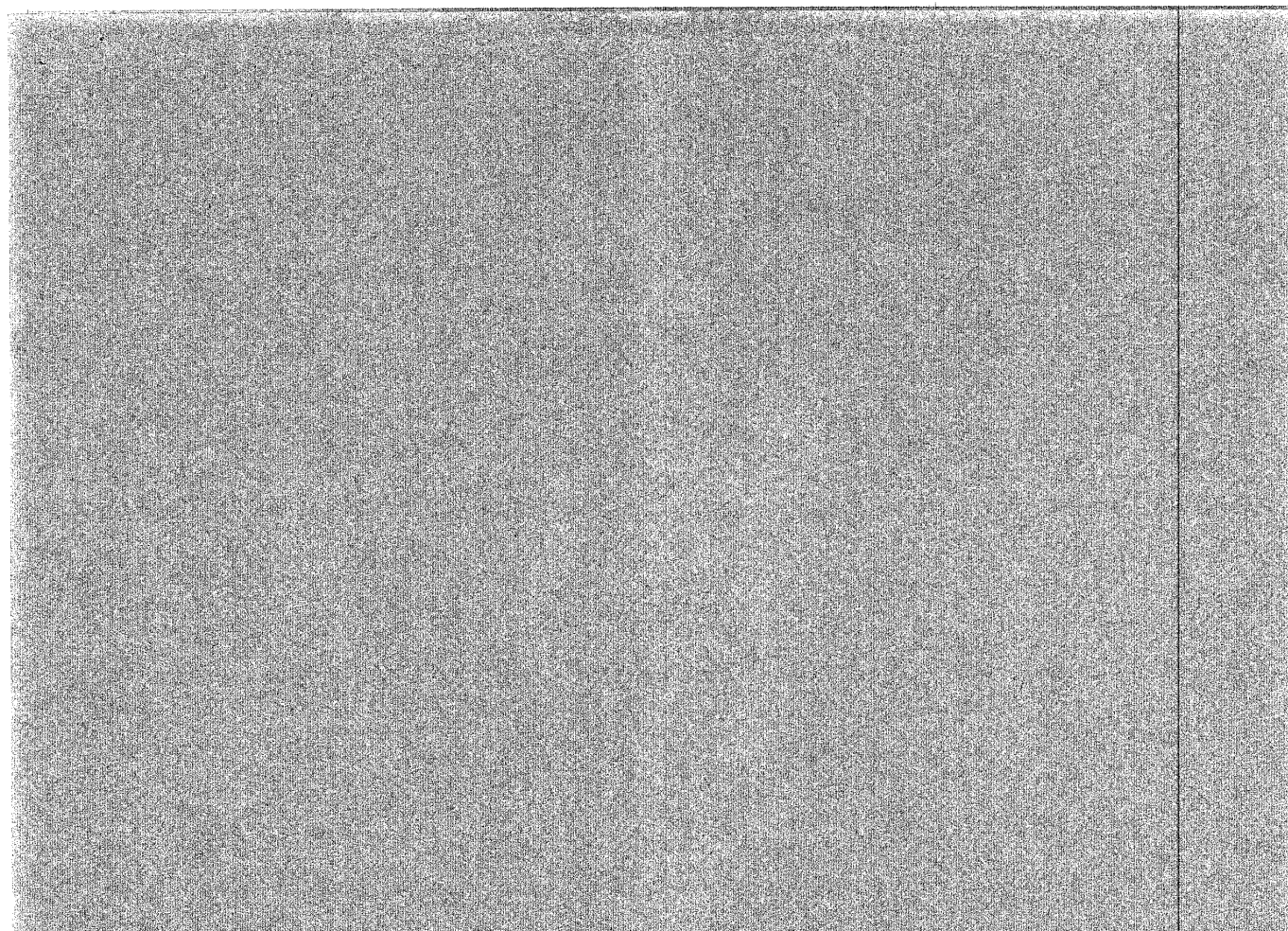
This table accounts for all 3000 existing locomotives that are projected to be retired from service: 100 pre-1973 locomotives per year during 2000-2009 (as part of a normal retirement schedule); 300 later locomotives per year during 2002-2007; and 200 later locomotives in 2008.

APPENDIX P

Conversion of Emission Rates to g/kW-hr

The emission standards and rates presented in this document, which are expressed in g/bhp-hr, can be converted to g/kW-hr by multiplying them by 1.341. The converted baseline emission rates and emission standards for the line-haul and switch cycles are shown below.

Baseline Emission Factors and Standards Expressed as g/kW-hr				
Line-Haul				
	HC	CO	NO _x	PM
Baseline	0.644	1.716	17.433	0.429
Tier 0	1.341	6.705	12.740	0.805
Tier 1	0.738	2.950	9.923	0.603
Tier 2	0.402	2.012	7.376	0.268
Switch				
	HC	CO	NO _x	PM
Baseline	1.354	2.454	23.333	0.590
Tier 0	2.816	10.728	18.774	0.966
Tier 1	1.609	3.353	14.751	0.724
Tier 2	0.805	3.218	10.862	0.322



Attachment 1

Diesel Fumes - Gross Ton Mile Savings converted to Gallons of Diesel Fuel Saved

Gross Ton Mile Calculation

30,142,114,000 coal ton miles - (from next page)
 10,667,579,440 Plus train weight = 30,142,144,000/121.5 (coal tons per car)*21.5 Tare Wt./car * 2 (round trip transit)
 40,809,693,440 Gross Ton Miles

	Tons (000's)	Ton Miles (000's)	
Total Potential Tons>	119,077 1)	40,809,693,440 < Gross Ton Mile Savings, in thousands	
		51,012,117 <Rule of thumb	Gallons of diesel fuel saved at 0.00125 gallons/gross ton mile 2)
Scaled to 100 million	100,000	34,271,684,238 < Gross Ton Mile Savings, in thousands	
		42,839,605 <Rule of thumb	Gallons of diesel fuel saved at 0.00125 gallons/gross ton mile 2)

Notes:

- 1) Based upon potential tonnage at plants in three market segments of DM&E's target market
- 2) AAR Analysis of Class 1 Railroads, 1999

Diesel Fumes - Mileage Savings

Market Segments

<u>Company</u>	<u>Plant</u>	Potential Tons (000's) 1)	DM&E Miles Saved	Ton Miles Saved (000's) 2)	
Data Redacted	Data Redacted	Redacted	363	1,465,794	
Data Redacted	Data Redacted	Redacted	264	795,696	
Data Redacted	Data Redacted	Redacted	29	17,400	
Data Redacted	Data Redacted	Redacted	13	16,380	
Data Redacted	Data Redacted	Redacted	274	213,446	
Data Redacted	Data Redacted	Redacted	314	99,224	
Data Redacted	Data Redacted	Redacted	225	99,000	
Data Redacted	Data Redacted	Redacted	268	494,192	
Data Redacted	Data Redacted	Redacted	272	285,056	
Data Redacted	Data Redacted	Redacted	282	639,576	
Data Redacted	Data Redacted	Redacted	264	2,423,520	
Data Redacted	Data Redacted	Redacted	343	133,084	
Data Redacted	Data Redacted	Redacted	172	780,880	
Data Redacted	Data Redacted	Redacted	130	624,000	
Data Redacted	Data Redacted	Redacted	313	495,166	
Data Redacted	Data Redacted	Redacted	313	615,045	
				9,197,459	<thousands
			DM&E Miles	Ton Miles	
			Saved	Saved (000's) 2)	
Data Redacted	Data Redacted	Redacted	208	64,896	
Data Redacted	Data Redacted	Redacted	208	180,544	
Data Redacted	Data Redacted	Redacted	225	288,000	<rail direct
Data Redacted	Data Redacted	Redacted	208	175,136	
Data Redacted	Data Redacted	Redacted	208	53,248	
Data Redacted	Data Redacted	Redacted	208	481,728	
Data Redacted	Data Redacted	Redacted	208	313,664	
Data Redacted	Data Redacted	Redacted	278	406,992	<rail direct
				1,964,208	<thousands
			DM&E Miles	Ton Miles	
			Saved	Saved (000's) 2)	
Data Redacted	Data Redacted	Redacted	263	436,580	
Data Redacted	Data Redacted	Redacted	263	810,040	
Data Redacted	Data Redacted	Redacted	263	1,285,544	
Data Redacted	Data Redacted	Redacted	263	255,636	
Data Redacted	Data Redacted	Redacted	263	653,292	
Data Redacted	Data Redacted	Redacted	263	311,392	
Data Redacted	Data Redacted	Redacted	263	867,900	
Data Redacted	Data Redacted	Redacted	263	2,605,278	
Data Redacted	Data Redacted	Redacted	263	108,356	
Data Redacted	Data Redacted	Redacted	263	210,400	
Data Redacted	Data Redacted	Redacted	263	762,700	
Data Redacted	Data Redacted	Redacted	263	89,683	
Data Redacted	Data Redacted	Redacted	263	61,016	
Data Redacted	Data Redacted	Redacted	263	82,056	
Data Redacted	Data Redacted	Redacted	263	752,180	
Data Redacted	Data Redacted	Redacted	263	2,524,800	
Data Redacted	Data Redacted	Redacted	263	1,052,000	
Data Redacted	Data Redacted	Redacted	263	4,308,992	
Data Redacted	Data Redacted	Redacted	263	444,996	
Data Redacted	Data Redacted	Redacted	263	354,524	
Data Redacted	Data Redacted	Redacted	263	645,928	
Data Redacted	Data Redacted	Redacted	263	294,560	
Data Redacted	Data Redacted	Redacted	263	62,594	
				18,980,447	<thousands
			Total Potential Tons>	30,142,114	<thousands
			Grand Total:	30,142,114,000	coal ton miles

ATTACHMENT D

TRAIN TRAFFIC IMPACTS: ROUTE COMPARISONS

The Draft EIS correctly goes to great lengths to define the impacts that increased train traffic from the DM&E project will have in our service area. First, the DEIS addresses the train traffic impacts to local communities served by DM&E. Second, the DEIS analyzes the amount of diesel fume emissions generated by the project. What it fails to do -- and what supporters need to comment on in order to correct it in the Final EIS -- is to recognize that these traffic impacts are offset by reduced traffic and diesel emissions in other areas.

The DM&E project will have very favorable environmental traffic impacts for communities outside our service region. And it will lower diesel fuel emissions nationally because of shorter rail routes to market. To understand this, the Final EIS needs to recognize that the new route resulting from the DM&E project is competitive with other existing routes, each of which has its own traffic impacts and its own diesel emission impacts. One train going via the new DM&E route is one less train via a competing route.

Western Coal Routes: Routing from Wyoming. As noted in our original application, the DM&E project is based largely on the fact that ours is the shortest, most efficient and least problematic rail route between the Wyoming PRB and our target markets. Our target markets are (1) the Mississippi River, (2) the upper midwest (Twin Cities gateway), (3) the Great Lakes, and (4) the Chicago gateway.

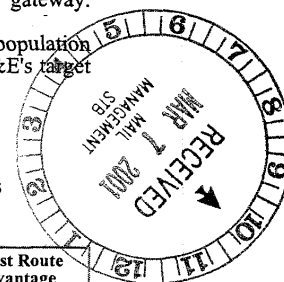
Table A ("Western Coal Routes") provides greater detail relating to these significant population and mileage differences between the three PRB rail carriers in routing from the PRB to DM&E's target market area:

Table A
Western Coal Routes
Comparison of Selected Western Routes to DM&E's Four Primary Markets
From Thunder Jct, Wyoming

Route to the Great Lakes:	Miles ¹	Population Along Route Corridor ²	DME Shortest Route Distance Advantage
DME-Owatonna,MN-IMRL-Northfield,MN-CPRS-Superior,WI	924	991,600	28 miles
DME-Mankato,MN-UP-Superior,WI (DME Shortest Route)	896	1,006,600	0 miles
UP-Superior,WI	1,202	1,567,800	306 miles
BNSF-Superior,WI	1,159	356,500	263 miles

Route to the Upper Mississippi River:	Miles ¹	Population Along Route Corridor ²	DME Shortest Route Distance Advantage
DME-Owatonna,MN-IMRL-McGregor,IA	892	228,100	106 miles
DME-Winona,MN (DME Shortest Route)	786	253,000	0 miles
UP-Clinton,IA	1,000	843,000	214 miles
BNSF-Keokuk,IA	994	445,200	208 miles

Route to the Twin Cities Gateway:	Miles ¹	Population Along Route Corridor ²	DME Shortest Route Distance Advantage
DME-Owatonna,MN-IMRL-Minneapolis,MN	781	307,800	31 mi
DME-Mankato,MN-UP-Minneapolis,MN (DME Shortest Route)	750	532,500	0 m
UP-Minneapolis,MN	1,056	1,093,600	306 m
BNSF-Minneapolis,MN	1,067	490,500	317 mi



Route to the Chicago Gateway:	Miles ¹	Population Along Route Corridor ²	DME Shortest Route Distance Advantage
DME-Owatonna,MN-IMRL-Spaulding,IL-EJE (DME Shortest Route)	1,096	385,200	0 mi
UP-West Chicago,IL-EJE	1,107	954,000	11 mi
BNSF-Eola,IL-EJE	1,123	614,800	27 mi

¹ Source: PC Rail 7.0

² Source: 1990 Census as shown in Rand McNally Atlas.

Table A helps illustrate the impact comparison between the various competing PRB routes between the Wyoming mines and the DM&E target market destinations. A summary of the population impact/efficiency improvements can be summarized as follows:

* From the PRB to the Mississippi River gateway, the DM&E route is 208 miles shorter than the BNSF route, and 214 miles shorter than the UP route. DM&E's routing impacts hundreds of thousands fewer population than either the UP or BNSF routing.

* From the PRB to the Twin Cities gateway, the DM&E route is 306 miles shorter than the UP route, and 317 miles shorter than the BNSF route. It impacts far less population than the UP route, but slightly more than the BNSF route through North Dakota.

* From the PRB to the Great Lakes, the DM&E route is 306 miles shorter than the UP route, and 263 miles shorter than the BNSF route. It impacts far less population than the UP route, but far more than the BNSF route through North Dakota.

* From the PRB to the Chicago gateway, the DM&E route is only 27 miles shorter than the BNSF route, and 11 miles shorter than the UP route. But DM&E's routing impacts far less population than either the UP or BNSF routing.

Eastern Coal Routes: Routing from PA & KY. As noted in DM&E's application, in addition to enhancing competition in the PRB, another purpose of the project is intended to help utilities convert their plants from the high sulfur coal being mined from various regions in the eastern United States to greater utilization of the cleaner western coal. This results in decreased sulfur dioxide emissions. Because there are many different points of origin for eastern high sulfur coal (compared to Wyoming's concentration of mines in the Powder River Basin), there are many different routes that can be used. But trains travelling on virtually all major routes from eastern origins affect more population than any of the DM&E routes out of the PRB.

To illustrate the point, we have used a short eastern coal route for comparison, and applied conservative assumptions which we believe understates the average population impacted by eastern coal route movements. Of DM&E's four target markets, the Great Lakes market should experience the greatest conversion from eastern high sulfur to western low sulfur coal. Additionally, this market also provides the easiest "gateway" comparison. Lake Erie is the most common transload port for eastern coal, and is used in Attachment B because it is the most efficient route for eastern coal destined to the Great Lakes market. It is also one of the shortest coal routes from eastern producers to a major gateway. Finally, the population figures do not include populations outside incorporated cities, which obviously will be higher for the suburban eastern U.S. routings than in the rural west.

Still, even this routing comparison shows significantly greater populations being impacted by eastern coal movements, compared to DM&E routing of PRB coal. Table B ("Eastern Coal Routes") provides greater detail relating to these population impact figures for purposes of comparing them to population impacts relating to DM&E's Great Lakes routing (noted in Table A):

Table B
Eastern Coal Routes
Comparison of Selected Eastern Coal Routes
To the Great Lakes

Origin	Delivering Railroad ¹	Approximate Population ²
Waynesburg, PA	CSXT	1,333,775
Waynesburg, PA	NS	1,679,239
Pikeville, KY	CSXT	1,098,065
Sidney, KY	NS	1,186,418

Note: Does not include population outside city limits.

¹ Source: PC Rail 7.0

² Source: 1990 Census as shown in Rand McNally Atlas.

DM&E most efficient routes affect a total of population base of between 228,000 to 992,000 people. By comparison, the sampling of eastern routes to the Great Lakes in Table B affects significantly more people. For every train on the DM&E resulting from converting our target utilities from high sulfur eastern coal to greater utilization of cleaner PRB western coal, that train traffic pressure on these more densely populated eastern origin routes is decreased.

Finally, it should be noted that many of these eastern cities already experience train traffic impacts exceeding 100 trains per day going through their communities, as noted in Table D, below. Toledo and Cleveland Ohio are notable examples.

DM&E vs. Other Railroad Traffic. Project opponents work hard to scare the public with exaggerated train traffic levels and impacts, claiming (with no basis) as much as 70 trains per day and raising false concerns about coal dust and congestion. The actual traffic projections are straightforward. Compared to many other parts of the country, DM&E projected traffic levels are considered moderate to low. A brief overview illustrates the point.

a. DM&E Aggressive case estimates. The most optimistic DM&E traffic projections indicate it may be possible to reach as many as 12 to 14 new trains per day (6-7 loaded, 6-7 empty) within the initial years of start-up operations. It is believed possible for traffic to grow over the subsequent years, reaching its maximum traffic base over ten (10) years from now -- which could mean as much as 34 trains per day (17 loaded, 17 empty). It is also expected that the existing traffic base will grow to approximately 3 trains per day (1.5 loaded, 1.5 empty), bringing the overall traffic figures to 15-17 trains per day in the early years, possibly growing to 37 trains per day over a decade from now.

It should be emphasized that these are the highest projections done by any market analysis. These market projections resulted from an admittedly aggressive traffic scenario. They were developed by Fieldston Marketing Research on behalf of DM&E when it was preparing its project business plan. Another important feature of that study suggests that the DM&E project is financially viable with less than (10) ten trains per day (5 loaded, 5 empty).

b. Opposition Forecasts. Significantly, a 1998 study funded by the Mayo Clinic and the "Midstates Coalition" (both opposed to the DM&E project and both now demanding DM&E build bypasses around Brookings and Rochester due to expected high traffic volumes) found that train traffic resulting from the project would be no more than 6 trains per day initially (3 loaded, 3 empty), reaching a maximum of 14 trains per day (7 loaded, 7 empty) over ten years from now. *See August 1998 Verified Statement of Mike Nelson on Behalf of Midstate's Coalition, STB Finance Docket No. 33407, August 31, 1998.* This report was written by DM&E project opponents in an attempt to convince the STB that DM&E's project was not economically viable. Since they lost that argument, their train traffic projections have taken a marked turn upwards, with some of their members now suggesting that the project will mean 70 trains per day. They offer no market analysis or backup evidence of any kind.

c. Independent Traffic Forecasts. Virtually every other market analyst that has reviewed these numbers believes DM&E's aggressive estimates are too high. A 1998 independent financial analysis conducted by Schroder & Co., Inc., a Wall Street Financial analyst, placed the train traffic estimates somewhere between DM&E's aggressive case projections and the Midstates Coalition analysis. Schroders projected that DM&E might be able to achieve roughly 75% of its aggressive projections (i.e., 10 to 24 trains per day). *See Schroders Topical Focus, August 27, 1998, G.H. Yablon & M.S. Willey.* Actual DM&E traffic estimates are summarized in Table C as follows:

TABLE C

TRAINS PER DAY ESTIMATES
(Highest Case DM&E Traffic Projections)

Study Sponsor	Start-up of Coal Operations	Long range (10 years)
Mayo/Coalition	6 (3 loaded, 3 empty)	14 (7 loaded, 7 empty)
Schroders, Inc.	10 (5 loaded, 5 empty)	24 (12 loaded, 12 empty)
DM&E	14 (7 loaded, 7 empty)	34 (17 loaded, 17 empty)

Whether the actual average number of DM&E trains per day ultimately reaches 10 or 14 or 34, it is a relatively low number compared to hundreds of other communities around the country. Table D helps illustrate the point:

TABLE D
NATIONAL TRAIN TRAFFIC EXAMPLES
(Current Experiences)

City	Trains per day
Kearney, NE	140
Ames, IA	65
Bill, WY	125
Fargo, ND	71
Marysville, KS	55
Cleveland, OH	150
St. Cloud/Sauk Rapids, MN	60
Edgemont, SD	55
Toledo, OH	155
Red Wing, MN	40
Sidney, NE	107
Lusk, WY	80
Columbus, NE	60
Fostoria, OH	160
Newcastle, WY	75
Moorhead, MN	71

Conclusion. When writing comments to the STB, urge them to consider the positive train traffic impacts that the DM&E project will have for the communities on other routes -- outside the immediate DM&E impact area. Compare the relatively light traffic projections on the DM&E (12 to 37 trains per

day) to the existing traffic on other lines (40 to 155 trains per day). Point out that based on experience elsewhere, the impacts of the potential DM&E train traffic does not appear as significant as indicated by the DEIS. Question why double and triple actual traffic impacts are acceptable in other cities, and why a fraction of that traffic amount on DM&E warrants consideration of bypasses or other extraordinary mitigation not required in other cases? More importantly, note that the DEIS should give credit to the DM&E project for relieving traffic pressure that currently exists in other parts of the country.

The Draft EIS assumes that coal traffic moving via DM&E as a result of this project is all new traffic. It gives no credit to the fact that the project traffic impacts flowing from this project are largely a "zero sum" game to the extent that every train on the new DM&E system means one less train in a city that already has serious train traffic congestion problems far worse than anything DM&E communities will ever experience.

Energy is a national resource. We all share in generating the demand. It is in the public interest to spread out the train traffic impacts. Many of the communities on the competing routes currently experience train traffic counts exceeding 100 trains per day. That is over three times the amount of traffic projected for the DM&E project ten years from now. There is a strong public policy argument to make for providing relief to those other communities. DM&E supporters should urge that the Final EIS consider these issues and public policy benefits in its environmental analysis.

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DM&E ANALYSIS OF STB PROPOSED MITIGATION – IMPACTS ON TRAIN OPERATION

The following discussion describes DM&E's concerns as they relate to the mitigation measures proposed by the STB in the DEIS, Chapter 7 – SEA's Proposed Environmental Mitigation – and suggests necessary clarifications.

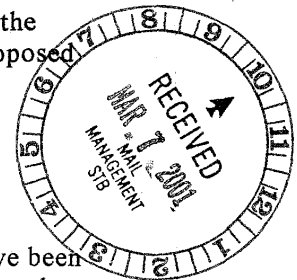
A. Safety – 7.8.1

1. Grade Crossing / Warning Devices – 7.8.1.1

The Grade Crossing/Warning Device impacts to the traveling public have been clearly defined in the DEIS for Alternative C, especially as laid out in worksheet data presented in appendices G & H. The analysis differentiated between existing alignment impacts and new construction impacts. The mitigation for these impacts will likewise also need to be differentiated.

In relation to the existing alignment analysis for Alternative C, the existing Grade Crossing/Warning Devices were tested for their adequacy in protecting the traveling public. The crossings not tripping the threshold value meet the crossing protection adequacy requirement and do not impose a significant impact on the traveling public. Only those crossings that reach the threshold level should be required to have the crossing protection upgraded to the next level (i.e.: passive protection upgraded to active protection [flashers], active protection such as flashers upgraded to flashers with gates, active protection flashers with gates upgraded with appropriate enhancements such as directional whistles, cantilevers, street lights or other technology as appropriate). Therefore, as a point of clarification, the proposed mitigation item #2 should be changed to reflect that only those crossings that reach the threshold level are required to have improved or upgraded crossing protection, and therefore only those crossings are subject to mitigation requirements. Only those crossings reaching the threshold need to undergo consultation with the Federal Railroad Administration, State Departments of Transportation and/or local road authority as mitigation for the Project prior to construction. Any Community Plans or Negotiated Agreements with cities or counties that may have enhancements above the levels dictated by the analysis in the DEIS will be permitted in lieu of the base mitigation provided that these changes are not less than what is recommended based on the DEIS analysis. These Community Plans were bargained for and negotiated in good faith with both parties receiving value. Such agreements should not be used to unilaterally raise the bar for the base mitigation level.

In relation to the new construction, proposed mitigation item #2 requires specific design analysis as it might pertain to any special conditions prevalent at these sites after construction. Although the DEIS analysis in Appendix H indicates the minimum



acceptable level of crossing protection, details concerning the actual implementation of these levels will require consultation with SDDOT and WYDOT respectively. This will also require consultation and input from the Federal Railroad Administration, and/or local road authority as part of the mitigation for this project prior to construction for all of the crossings in the new construction section.

As clarification, Mitigation item #1 would not need to be drastically different for existing and new construction. The grade crossing safety plan would generally be the same for both new and existing construction, and only minor changes might be necessary. This plan could include items such as a public notice and appropriate special temporary roadside signing required prior to initiating commercial service or increasing the speed of the trains, and public access to classes for Operation Lifesaver or rail highway safety awareness. This item is covered in mitigation item # 7 (7.8.1.2).

Mitigation item # 3 is already required by FRA Rules, and DM&E will comply with all such laws and regulations.

2. Emergency Response – 7.8.1.2

Mitigation Item #5 is not currently technically feasible in all aspects. Where appropriate, a RR crossing signal interconnection to an adjacent or nearby traffic signal is feasible, and is currently provided where necessary. However, a real-time train location monitoring system is currently not practical. A signal feed could be provided to the community that would indicate whether a particular crossing was currently activated or not. But this information taken out of context with no additional information about anticipated or remaining crossing activation time, which is not technically feasible to provide, would probably not be of any significant value for emergency response. Of more value would be a relationship or toll-free telephone contact with our operations control center concerning our current operations.

Mitigation Item #6 indicates that the Railroad will fund training sessions at Pueblo, CO for up to 4 representatives for affected communities for emergency response. Although, this is a nice thing to do, I can find no related direct impacts that this measure is proposed to mitigate. The TTC at Pueblo offers courses primarily in HazMat emergency response. Reconstructing our tracks and facilities will dramatically reduce derailment exposure. I can't find any related impact resulting from the Project that would be increasing our HazMat or derailment exposure.

Mitigation Item #9 requires consultation with interested communities along its line concerning measures to eliminate the need to sound train horns (Whistle-Free crossings). Consultation can certainly occur, and probably in many instances funding, methodology, and a relationship can be advanced to accomplish this goal. However, mandating whistle free crossings is not practicable, as it requires a proactive joint cooperative relationship between the railroad and the community to effectively compensate for the increase in liability. This relationship would have several requirements, including highway traffic enforcement, trespasser control, lighting, visibility, crossing signal enhancements, etc.

3. Fire Prevention – 7.8.1.5

Fire impacts were defined in the DEIS as potential impacts to Rangeland/Farm land and/or other structures. The potential causes are attributed to: locomotive exhaust sparks (from older locomotives), overheated bearing and journals, and worn brake shoes resulting in friction sparking. Our plan should address these potential causes. Mitigation item #18 requires some clarification. It suggests that applicant's locomotives should be equipped with functioning spark arrestors on exhaust stacks. However, this is not practicable on turbocharged equipment and is not recommended, as sparks are contained in the turbocharger box. All older (non-turbocharged) locomotives will be equipped with a spark arrestor on the exhaust stack. This mitigation item also requires the applicant to provide for the installation of low-spark brake shoes. The applicant should be required to use composition brake shoes (low-spark) on all of its equipment and any other carriers equipment that it repairs in accordance with federal AAR Interchange rules. However, any equipment received in interchange from other carriers with non-composition (regular) brake shoes would have to be transported on our line in accordance with interstate common carrier obligations.

4. Miscellaneous – 7.8.1.6

Mitigation Item #19 requires the applicant, to the extent practicable, to maintain at least one open lane of traffic at all times during crossing construction. This requirement is not feasible. Efforts can be undertaken to reduce the amount of time the crossing is closed, but maintaining grade line and ballast compaction requirements for the crossing rail track structure and highway crossing surface do not permit maintaining an open traffic lane. Use of a ballast consolidator or track stabilizer can reduce the necessary outage, but not eliminate it. The only options for traffic flow are a low speed highway shoofly (usually not practical), or a designated and appropriately signed detour route.

Mitigation Item #20. The organization name is AREMA, American Railway Engineering and Maintenance of Way Association. It is not AREA, which was a former predecessor organization.

Mitigation Item #22 requires the applicant to refuel locomotives at designated refueling locations. However, as clarification this should be done where practical, but must not be done where an inadvertent spill could enter a watercourse, wetlands, or other environmentally sensitive area.

B. Land Use and Community Concerns – 7.8.3

Mitigation Item #26 requires applicant to make reasonable attempts to identify and notify individuals who have encroached on Applicant's existing right-of-way prior to commencing construction. This requirement could be unduly burdensome unless reasonable attempt is defined as contacting the adjacent landowner to advise him of the encroachment and request his removal of the encroachment.

Mitigation Item #29 would require notification of adjacent property owners 48 hours prior to herbicide application. This mitigation measure would effectively eliminate the use of herbicides; chemical control is one of the most significant and effective measures currently used for an integrated pest control program. Herbicides used on the railroad are applied by a licensed applicator (contractor) in accordance with label requirements, state and local laws. Most herbicides are applied pre-emergent or early post-emergent to be effective in vegetation control. That makes the effective herbicide application season relatively short, just a few weeks. When attempting to apply herbicides on nearly 1000 miles of track, adding this notification requirement with thousands of adjacent landowners to notify would make it a nightmare and overly burdensome.

1. Agriculture/Ranching – 7.8.3.1

Mitigation Item #32 requires to the Community Liaison to negotiate with farmers and ranchers regarding the possibility of train-free periods to facilitate movement of equipment or livestock from one side of the track to the other. Just for clarification, a train-free period is not practicable, however there is opportunity for a safe methodology to be developed utilizing flagmen or appropriate train order/instructions in compliance with Federal Railroad Administration – Railroad Operating Rules.

C. Water Resources – 7.8.4

Mitigation Item #64 requires herbicides to be approved for use and be applied by licensed applicators only as necessary for rail operations. This portion of Item # 64 is quite well formulated. However, it goes on to require that herbicides not be applied within 150 feet of streams and wetlands. Laws and rules are already in place regarding application of herbicides in streams and wetlands. Only label approved aquacides or mechanical vegetation control may be used immediately adjacent to streams and wetlands. This particular wording in mitigation item #64 is troublesome as it reads differently than the rules and laws currently in effect, and would be difficult or impossible for the applicant to ensure compliance with its requirements when utilizing licensed applicators.

D. Biological Resources – 7.8.7

Mitigation Item #78 requires consultation with SD Game Fish & Parks and WY Dept of Game & Fish to develop mutually acceptable under and overpass designs to protect big game. There are a number of large drainage structures and cattlepass structures throughout the new construction, which could serve this purpose.

E. Noise – 7.8.10

Mitigation item #92 requires applicant to install rail lubrication systems at curves where appropriate to reduce noise for residential noise receptors. Current industry practice tends to favor direct high-rail/locomotive application of lubricant to the gage corner of the rail over wayside lubricators. Wayside lubricators tend to over-apply lubricant creating an environmentally disagreeable mess in the immediate area of

the wayside lubricator. Also, to have any effect, wayside lubricators need to have the grease carried by the railcar wheels around the curves. This results in grease being applied not only to the gage corner of the rail where it is effective, but also to the top of the ball of the rail where it becomes problematic, reducing locomotive traction and affecting braking. The railcar wheels cannot effectively accomplish this grease transport function when trying to carry the grease through at-grade road crossings or turnouts. Since most residential noise receptors are in areas of concentrated at-grade crossings, this shortcoming will be more pronounced and drastically reduce the likelihood that this mitigation will have the desired effect. Additionally wayside lubrication doesn't work as well with empty cars as it does with loaded cars. For these reasons, it seems more realistic to require periodic direct application of lubricant over requiring wayside lubrication.

Mitigation Item #95 (Please see my comments concerning Mitigation Item #9.)

Mitigation Item #97 requires the applicant to regularly inspect rail car wheels to maintain wheels in good working order and minimize the development of wheel flats. The AAR Interchange Rules specify when a wheel is condemnable and is subject to being replaced. DM&E must abide by those rules and the operating rules promulgated by the Federal Railroad Administration covering regular car inspection intervals.

DRAFT**DM&E Powder River Basin Expansion Project
Air Quality Mitigation Agreement**

In the Draft Environmental Impact Statement, Surface Transportation Board Finance Docket No. 33407, September 27, 2000, (DEIS) Chapter 7, Section 7.8.6, Number 67, the Surface Transportation Board determined that the Dakota, Minnesota, & Eastern Railroad Corporation "shall comply with the recommendations of the Air Quality Working Group" to mitigate the potential adverse air quality impacts from the DM&E Powder River Basin Expansion Project (PRBEP). The parties to this agreement, members of the Air Quality Working Group, have agreed to the following recommendations:

1. **MODELING RESULTS.** The potential air quality impacts for the PRBEP were analyzed in the DEIS for nine different alternatives, corresponding to three different potential alternative routes (Alternatives B, C, and D), hauling three different levels of coal transport (20, 50, and 100 million net tons per year, MNT). For these nine alternatives, the following analyses were conducted, with the following results:

a. Near-source modeling of criteria pollutants was compared to the National Ambient Air Quality Standards (NAAQS), the Wyoming Ambient Air Quality Standards (WAAQS), and PSD Class II Increment for the PRBEP project alone, for other sources alone, and for cumulative impacts (project alone plus other sources). As non-stationary sources, PRBEP engines are not subject to NAAQS, WAAQS, or PSD increment analysis. Nevertheless, comparisons to these standards were considered helpful in analyzing the air quality impacts of the PRBEP. The modeling demonstrated no violations of NAAQS or WAAQS. It predicted one exceedance of PSD Class II Increments, but this exception was due completely to sources other than the PRBEP.

b. Far-Field modeling of criteria pollutants was compared to NAAQS, WAAQS, and PSD Class I and II Increment for the project alone, for other sources and for cumulative impacts. Although PRBEP engines are not subject to these standards, the comparisons were used to analyze air quality impacts. The modeling showed no violations of NAAQS or WAAQS at the Class I and II receptor areas in the region. The estimated pollutant concentrations at the far-field receptor areas were well below the applicable PSD increments.

c. Far-Field modeling was compared to thresholds of concern for potential acid deposition impacts. The US Forest Service threshold of concern is changes of 10 percent in ANC (acid neutralizing capacity). For all project alternatives, the change in ANC is predicted to be less than 2 percent, well below the 10 percent threshold of concern.

d. Far-Field modeling was compared to thresholds of concern for potential visibility impacts. The far-field modeling estimated that there are potential impacts to visibility at sensitive Class I and II areas in the region for some of the project alternatives at higher levels of coal haulage.

2. INITIAL EVALUATION AND MITIGATION OF VISIBILITY IMPACTS. The visibility analysis indicated that, at the emissions levels shown below in Table 1 below, which correspond to the emissions projected at a haulage rate of 60 MNT, the PRBEP project alone would cause no increases in background extinction greater than 10% at any of the sites analyzed, but would be projected to cause an increase in background extinction greater than 5% for 2 days at Badlands National Park and for 1 day at Wind Cave National Park.

Table 1. Maximum Allowable Locomotive Emissions for PRBEP			
Pollutant	Tier 0 Emission Factor (g/gal)	Total Emissions (gm/sec)	Total Emissions ² (tons/year)
HC (as CH ₄)	10.0	11.136	387.1
NO _x (as NO ₂)	178	206.411	7175.2
PM-10	6.7	7.455	259.2
SO ₂ ³	16.6	18.59	646.2
1 Emission totals within modeling domain (from about Haakon County, South Dakota west, inclusive) including coal trains, sidings, and rail yards.			
2 Assumes an average of 21.1 round trip coal trains per day operating with four AC locomotives each.			
3 Based on fuel sulfur content of 0.26 percent by weight and a density of 1.07 lbs per gallon.			

Based on the frequency, magnitude, and duration of these projected impacts, the NPS has determined that the impacts from the PRBEP project alone at these emission rates are not adverse. Therefore, as long as DM&E's haulage rates do not exceed 60 MNT, no additional mitigation measures, beyond those indicated below, will be required.

The visibility analysis indicated that Alternative C of the PRBEP project is the alternative that causes the least visibility impact to the sites analyzed. DM&E will therefore mitigate potential visibility impacts by using the route specified as Alternative C.

3. RE-EVALUATION OF EMISSIONS. If DM&E's haulage rates exceed 60 MNT, then DM&E may re-evaluate its emissions to determine if they actually exceed the levels shown in Table 1 above. In performing this re-evaluation, DM&E may demonstrate, by monitoring or other reasonably accepted scientific method, that one or more of the assumptions used in the visibility analysis causes an overstatement of the projected emissions, and that if more accurate emissions

data are used, then haulage at a higher rate will not cause projected emissions that exceed the levels shown in Table 1 above. If DM&E demonstrates that a haulage rate higher than 60 MNT can be implemented without causing emissions greater than the levels set forth in Table 1, then DM&E may implement such higher haulage rate without performing additional mitigation measures.

By way of example, not limitation, DM&E has suggested that the fuel sulfur level assumed in the visibility study was too high and, therefore, the visibility study assumed too high an emission rate for each engine. DM&E has further suggested that, as a result, the visibility study overstates the predicted visibility impacts. If DM&E can demonstrate, by monitoring the emissions from a representative number of engines or other reasonably accepted scientific method, that actual operations at a higher haulage rate will still not exceed the emissions levels shown in Table 1 above, then DM&E may implement this higher haulage rate without performing additional mitigation measures.

4. RE-EVALUATION OF VISIBILITY IMPACTS. If DM&E's haulage rates exceed 60 MNT, then DM&E may demonstrate, by monitoring or other reasonably accepted scientific method, that one or more of the assumptions, factors, or modeling methods used in the visibility analysis causes an overstatement of the predicted visibility impacts, and that if more accurate assumptions, factors, or modeling methods are used, emissions which exceed the levels shown in Table 1 above will not cause visibility impacts greater than those predicted by the visibility analysis for a haulage rate of 60 MNT. If DM&E demonstrates that a haulage rate higher than 60 MNT can be implemented without causing projected visibility impacts greater than those projected at the emissions levels set forth in Table 1, then DM&E may implement such higher haulage rate without performing additional mitigation measures.

In performing such re-evaluation, DM&E shall utilize the modeling protocols, policies, and procedures then in effect and applicable to such modeling.

By way of example, but not limitation, DM&E has suggested that the assumed background levels of ammonia used in the visibility analysis exceed actual background levels at relevant locations. DM&E may attempt to demonstrate, by monitoring or other reasonably accepted scientific method, that background levels of ammonia are actually lower than those assumed in the visibility analysis. DM&E may then attempt to demonstrate that, if the visibility analysis is performed using the actual monitored ammonia background levels, then even emissions rates higher than those shown in Table 1 above will not be predicted to result in visibility impacts greater than those currently predicted for a haulage rate of 60 MNT. If DM&E successfully makes these demonstrations, then DM&E may operate at such higher emissions rates without performing additional mitigation measures.

5. MITIGATION TO REDUCE VISIBILITY IMPACTS. If DM&E's haulage rates exceed 60 MNT, and if DM&E does not or cannot make the

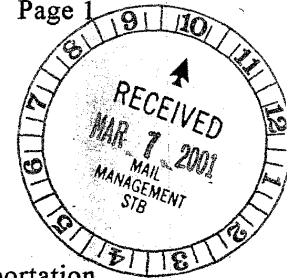
demonstration set forth in paragraph 3. above, the parties agree that DM&E shall implement mitigation measures to reduce emissions. Mitigation measures which may be implemented include but are not limited to the following:

- (1) DM&E may utilize a different mix of Tier 0, Tier 1 and/or Tier 2 locomotives to reduce emission rates. The PRBEP DEIS provided modeling results based on a mix of 50 percent Tier 0 locomotive and 50 percent Tier 1 locomotives for all haulage rates (20, 50 and 100 MNT). However, while the use of Tier 1 locomotives reduced total emissions, it did not reduce predicted visibility impacts. DM&E may begin operations without restriction as to the mix of locomotives, but reserve the option of implementing a different mix of locomotives as a mitigation measure. The parties recognize that the technology for Tier 2 locomotives does not currently exist, but that it may be developed by the time any additional mitigation measures are required.
- (2) DM&E may use fuel additives, emissions filters, or other methods to reduce emissions from locomotives.
- (3) DM&E may investigate the potential for purchasing emissions from other sources (offsets) to further reduce emissions in the air basin.
- (4) DM&E may investigate methods to reduce emissions from other sources in the National Parks.

6. COMBINATION OF RE-EVALUATIONS AND MITIGATION MEASURES. DM&E may utilize the re-evaluation of emissions set forth in paragraph 3 above, the re-evaluation of visibility impacts set forth in paragraph 4 above, and the mitigation measures set forth in paragraph 5 above, either alone or in any combination, to the extent necessary to maintain emissions at or below those shown in Table 1 above, to maintain predicted visibility impacts at or below those predicted by the visibility study to result from the emissions shown in Table 1 above, or to achieve comparable results through a combination of these.

Agreed to this ____ day of _____, 2001.

[Insert signature lines and party designations.]

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In performing such re-evaluation, DM&E shall utilize the modeling protocols, policies, and procedures then in effect and applicable to such modeling.

By way of example, but not limitation, DM&E has suggested that the assumed background levels of ammonia used in the visibility analysis exceed actual background levels at relevant locations. DM&E may attempt to demonstrate, by monitoring or other reasonably accepted scientific method, that background levels of ammonia are actually lower than those assumed in the visibility analysis. DM&E may then attempt to demonstrate that, if the visibility analysis is performed using the actual monitored ammonia background levels, then even emissions rates higher than those shown in Table 1 above will not be predicted to result in visibility impacts greater than those currently predicted for a haulage rate of 60 MNT. If DM&E successfully makes these demonstrations, then DM&E may operate at such higher emissions rates without performing additional mitigation measures.

5. MITIGATION TO REDUCE VISIBILITY IMPACTS. If DM&E's haulage rates exceed 60 MNT, and if DM&E does not or cannot make the

demonstration set forth in paragraph 3. above, the parties agree that DM&E shall implement mitigation measures to reduce emissions. Mitigation measures which may be implemented include but are not limited to the following:

- (1) DM&E may utilize a different mix of Tier 0, Tier 1 and/or Tier 2 locomotives to reduce emission rates. The PRBEP DEIS provided modeling results based on a mix of 50 percent Tier 0 locomotive and 50 percent Tier 1 locomotives for all haulage rates (20, 50 and 100 MNT). However, while the use of Tier 1 locomotives reduced total emissions, it did not reduce predicted visibility impacts. DM&E may begin operations without restriction as to the mix of locomotives, but reserve the option of implementing a different mix of locomotives as a mitigation measure. The parties recognize that the technology for Tier 2 locomotives does not currently exist, but that it may be developed by the time any additional mitigation measures are required.
- (2) DM&E may use fuel additives, emissions filters, or other methods to reduce emissions from locomotives.
- (3) DM&E may investigate the potential for purchasing emissions from other sources (offsets) to further reduce emissions in the air basin.
- (4) DM&E may investigate methods to reduce emissions from other sources in the National Parks.

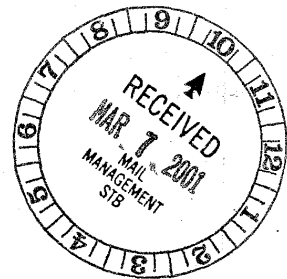
6. COMBINATION OF RE-EVALUATIONS AND MITIGATION MEASURES. DM&E may utilize the re-evaluation of emissions set forth in paragraph 3 above, the re-evaluation of visibility impacts set forth in paragraph 4 above, and the mitigation measures set forth in paragraph 5 above, either alone or in any combination, to the extent necessary to maintain emissions at or below those shown in Table 1 above, to maintain predicted visibility impacts at or below those predicted by the visibility study to result from the emissions shown in Table 1 above, or to achieve comparable results through a combination of these.

Agreed to this ____ day of _____, 2001.

[Insert signature lines and party designations.]

DRAFT

**MEMORANDUM OF AGREEMENT
BETWEEN
DM&E RAILROAD
AND
THE UNITED STATES BUREAU OF RECLAMATION**



This Memorandum of Agreement ("MOA") is entered into by and between the Dakota, Minnesota, and Eastern Railroad (hereinafter "DM&E") and the United States Bureau of Reclamation (hereinafter the "Bureau").

RECITALS

DM&E has applied to construct a railroad and all necessary facilities for the functions of the railroad (collectively, the "Railroad") across the Angostura Irrigation District (the "District"), a federally owned irrigation district, operated by the Bureau. Accordingly, said construction involves the use of a right-of-way across the District from the Bureau (the "Right-of-Way").

Among the purposes of this MOA are to (1) address the engineering issues to prevent damages to the District's existing facilities, and (2) address the economic compensation necessary to mitigate the impacts to the financial viability of the District.

Section 10 of the Reclamation Act of 1902, 43 U.S.C. § 387, as amended, provides authority to the Bureau to grant a Right-of-Way in connection with the construction, operation and maintenance of any project, provided that the use of the Right-of-Way is not incompatible with the purposes for which the land or interests in the lands are being administered, and shall be on the terms and conditions which will adequately protect the interests of the United States and the project for which the lands or interests are being administered.

The Bureau will grant a Right-of-Way to DM&E pursuant to Section 10 of the Reclamation Act contingent upon DM&E agreement to construct the Railroad without material adverse impact on the operations of the District; to provide the Bureau with the reasonable opportunity to review and comment on the design phase of the Railroad's construction (the "Ongoing Design") and the final design for construction (the "Final Engineering Design"); to accept responsibility for damages to the District's facilities which arise as a result of construction or the Railroad's ongoing operations; and to pay fees which the Bureau would otherwise receive from the lands being removed from irrigation;

This MOA establishes the understanding between DM&E and the Bureau regarding the responsibilities, conditions and procedures to be followed in the

preparation of the design and construction of the Railroad. This MOA shall be interpreted and enforced in accordance with appropriate Federal laws and regulations.

NOW, THEREFORE, DM&E and the Bureau agree as follows:

1. **Prevention of Damages to the District's Existing Facilities.** DM&E commits to the Bureau, through this MOA, to design and construct the Railroad in such a manner so as not to materially adversely affect the operations of the District, as they exist on the date of execution of this MOA. DM&E will ensure the reasonable and efficient flow of water through the District. DM&E will provide the necessary sleeving and other accommodations so as to prevent or minimize any material adverse impact to the capability of the District to operate. In any isolated areas where such flow cannot be adequately maintained, DM&E shall assume the irrigation rights and responsibilities as set forth in paragraph numbered 7, below.

2. **Responsibility for Damages to the District or District's Facilities.** DM&E hereby assumes responsibility to repair or reconstruct the District's facilities, which may be damaged as a result of the design of the Railroad, or by virtue of the functioning of the Railroad, once constructed. DM&E shall insure that all District facilities disturbed by construction of the Railroad shall be restored in at least as good as (or better) condition (structurally and functionally) than immediately prior to construction. DM&E will not be liable for problems associated with the District's operations arising as a result of, including but not limited to, problems associated with the age of the facilities, the normal wear and tear of the facilities, the faulty design of the facilities, and other factors not caused by the design, construction, or operation of the facility. In addition, DM&E will not be responsible for any diminishment in the District's capabilities due to natural forces at work in Angostura Irrigation District, including the accumulation of silt, or damages which may be caused by a flood condition resulting from causes other than DM&E's construction or operation of the Railroad.

3. **Review and Consultation of the Ongoing Design.** DM&E will provide the Bureau with a reasonable opportunity to consult with regard to the Ongoing Design, through the following steps:

a. DM&E will ensure reasonable opportunity to meet with the Bureau's Designated Representatives (as defined below) throughout the design and construction of the Railroad;

b. DM&E will provide the Designated Representatives with an updated design relevant to the District in advance of the meeting;

c. DM&E will brief the Designated Representatives as to the design of the Railroad as relevant to the District;

d. DM&E will provide the Designated Representatives with the opportunity to respond to the design, and will take into consideration any comments the Designated Representatives may have.

e. Nothing herein shall be interpreted to allow unreasonable delay to the ongoing design process pending a meeting or receipt of the Designated Representatives' comments. Both DM&E and the Designated Representatives shall undertake good faith efforts to accommodate efficient and prompt consultation and comments.

4. **Review and Consultation of the Final Engineering Design.** DM&E will provide the Bureau with a reasonable opportunity for review and consultation of the Final Engineering Design, through the following steps:

a. After the design consultations, but prior to the start of actual construction, DM&E will submit the Final Engineering Design to the Bureau for review and comments.

b. The Bureau may reject the Final Engineering Design, within thirty (30) days of receipt of same, if it demonstrates that the Final Engineering Design does not satisfy DM&E's obligations with regard to the operations of the District as described herein. The Bureau may not unreasonably withhold approval, and in any case, failure to respond with comments to the Final Engineering Design within thirty (30) days of receipt of same will be considered approval of the Final Engineering Design.

c. Rejection of the Final Engineering Design must be based on reasonable and generally accepted engineering principles which shall be specified in a written report, detailing the reasons for rejection of the Final Engineering Design;

d. Nothing in the foregoing section, including the failure of the Bureau to provide comments or review the design, relieves DM&E of its obligations to design the Railroad so as not to materially adversely impact the operations of the District as described herein.

5. **Designated Representatives.** The Bureau will designate specific Bureau representatives (the "Designated Representatives") who will review the ongoing design and Final Engineering Design. The Bureau will notify DM&E as to the identities of the Designated Individuals no later than within ten (10) days after the Bureau's issuance of the Record of Decision, and any changes to the Designated Individuals within ten (10) days of that change.

6. **Access to the District and District's Facilities.** DM&E will design and construct the Railroad so as to provide the Bureau with reasonable access necessary to service the District and the District's facilities. In addition, DM&E will provide the Bureau with access to the Right-of-Way for inspection of facilities located within the Right-of-Way on reasonable terms and conditions (e.g. supervision or safety training) and free of cost to the Bureau. In addition, DM&E will provide the Bureau with a

Railroad crossing plan which will demonstrate grade crossings for access from one side of the railway to the other, which profile will be subject to the Bureau's approval as set forth in paragraph numbered 4, above.

7. **Payment for Lands Removed from Irrigation.** DM&E will purchase water rights and pay the Bureau all fees, which the Bureau would have otherwise received, for said water rights relating to lands removed from irrigation directly by the grant of lands composing the Right-of-Way and for fees the Bureau would have otherwise received for irrigation of lands, which for practical purposes, due to the location of the Right-of-Way, are no longer irrigable (uneconomic remnants). The fees will be calculated on a per acre basis, using the same costs for repayment of capital costs and operating and maintenance costs as those calculated in the Repayment Contract for the Angostura Irrigation District. The acres removed from irrigation for which DM&E shall purchase water rights, both by virtue of the Right-of-Way and the location of the Right-of-Way is agreed by DM&E and the Bureau to be the 303 acres set forth in the preliminary engineering estimates included in Exhibit A to this MOA. In the event future design refinements or changes demonstrate any material change to this estimate, the parties shall agree to a modification of Exhibit A which accurately and reasonably reflects the impact of such design refinement or change.

IN WITNESS WHEREOF, the parties have executed this Memorandum of Agreement on this _____ day of February 2001.

UNITED STATES BUREAU OF
RECLAMATION

DAKOTA, MINNESOTA
& EASTERN RAILROAD

By: _____

By: _____

Name: _____

Name: _____

Title: _____

Title: _____