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Economic Effects of Western Federal Land-Use Restrictions on U.S. Coal Markets

By WILLIAM D. WATSON, ANTOINETTE L. MEDLIN, KATHLEEN K. KROHN, DAVID S. BROOKSHIRE, and RICHARD L. BERNKNOPF

A study of the long-term economic implications of land-use restrictions on the availability of the nation's coal resources.

U.S. GEOLOGICAL SURVEY CIRCULAR 1042

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Economic Effects of Western Federal Land-Use Restrictions on U.S. Coal Markets

By William D. Watson, Antoinette L. Medlin, Kathleen K. Krohn, David S. Brookshire,[1] *and* Richard L. Bernknopf

Abstract

Current regulations on land use in the Western United States affect access to surface minable coal resources. This U.S. Geological Survey study analyzes the long-term effects of Federal land-use restrictions on the national cost of meeting future coal demands. The analysis covers 45 years.

The U.S. Bureau of Land Management has determined the environmental, aesthetic, and economic values of western Federal coal lands and has set aside certain areas from surface coal mining to protect other valued land uses, including agricultural, environmental, and aesthetic uses. Although there are benefits to preserving natural areas and to developing areas for other land uses, these restrictions produce long-term national and regional costs that have not been estimated previously.

The Dynamic Coal Allocation Model integrates coal supply (coal resource tonnage and coal quality by mining cost for 60 coal supply regions) with coal demand (in 243 regions) for the entire United States. The model makes it possible to evaluate the regional economic impacts of coal supply restrictions wherever they might occur in the national coal market. The main factors that the economic methodology considers are (1) coal mining costs, (2) coal transportation costs, (3) coal flue gas desulfurization costs, (4) coal demand, (5) regulations to control sulfur dioxide discharges, and (6) specific reductions in coal availability occurring as a result of land-use restrictions. The modeling system combines these economic factors with coal deposit quantity and quality information—which is derived from the U.S. Geological Survey's National Coal Resources Data System and the U.S. Department of Energy's Demonstrated Reserve Base—to determine a balance between supply and demand so that coal is delivered at minimum cost.

EXECUTIVE SUMMARY

Current regulations on land use in the Western United States affect access to surface minable coal resources. This study examines the long-term effects that these restrictions could have on the national cost of meeting future coal demands, including impacts on regional patterns of coal availability, production, and transportation. The analysis covers 45 years.

Federal law requires the U.S. Bureau of Land Management (BLM) to manage land under its jurisdiction to achieve multiple-use goals. BLM has determined the environmental, aesthetic, and economic values of western Federal coal lands and has set aside certain areas from surface coal mining to protect other valued land uses, including agricultural, environmental, and aesthetic uses. Although there are benefits to preserving natural areas and to developing areas for other land uses, these restrictions create long-term national and regional costs that have not been estimated previously.

This study applies a model that integrates coal supply (coal resource tonnage and quality by mining cost for 60 coal supply regions) with coal demand (in 243 regions) for the entire United States. This national model makes it possible to evaluate the regional economic effects of supply restrictions wherever they might occur in the national coal market. The analytic framework measures the effects of land-use restrictions on coal resources over time. The main factors considered in the economic methodology are (1) coal mining costs, (2) coal transportation costs, (3) coal flue gas desulfurization costs, (4) coal demand, (5) regulations to control sulfur dioxide discharges, and (6) specific reductions in coal availability occurring as a result of land-use restrictions. The modeling system developed for this study, called the Dynamic Coal Allocation Model (DCAM), combines these economic factors with coal deposit quantity and quality information derived from the U.S. Geological Survey's National Coal Resources Data System (NCRDS) and the U.S. Department of Energy's Demonstrated Reserve Base (DRB) to determine a balance between coal supply and demand so that coal is delivered at minimum cost.

The study includes an empirical analysis of the nation's cost to implement Federal land-use restrictions in

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selected areas in the Western United States. The empirical analysis compares national coal delivery costs (the sum of coal extraction, transportation, and sulfur dioxide removal costs) under a base case (no land-use restrictions) with the costs that would occur under a suite of restricted cases. In the restricted cases, the study assumes that the specified land-use restrictions are in effect for 45 years. The land-use restrictions temporarily remove economically attractive coal deposits from future development, making it necessary to extract coal from more costly coal deposits. The same level of coal demands is met in the base and restricted cases but national coal delivery costs are higher for the restricted cases because of the need to extract coal from more costly coal deposits. The differences in national coal delivery costs, comparing base and restricted cases, are the estimated costs of the land-use restrictions.

The model quantifies the effects of land-use restrictions on coal supply under all of BLM's land-use planning screens. The screens include unsuitability criteria (for example, environmentally sensitive lands), multiple-use conflict (for example, oil and gas lands), and surface owner consent (private surface ownership covering Federal coal). Lands restricted exclusively under the unsuitability criteria (Office of the Federal Register, 1986, 43 CFR 3461.1) have an incremental cost (that is, additional national coal delivery costs), in present value terms, of about $1.1 billion or approximately 0.15 percent of the total market cost for the 1985–2030 period. The incremental cost, in present value terms, of all the restrictions for 45 years (1985–2030) is about $3 billion (in 1985 dollars) or approximately 0.5 percent of the total market cost for the period.

Since the land-use restrictions are designed to be temporary, the study also evaluates the economic effects if certain land-use restrictions were removed at different dates. The incremental cost of land-use restrictions will increase as long as the temporary restrictions are kept in place and coal demands increase. Using DCAM, the study estimates that by the year 2000 the present value of the incremental cost of land-use restrictions under Federal unsuitability criteria for 45 years (2000–2045) would be about $4.7 billion. Between 2020 and 2065, the unsuitability criteria land-use restrictions could have an incremental cost of about $15.8 billion in present value terms. (The anchor year is 2020.)

A summary of additional national coal delivery costs due to land-use restrictions, as estimated in this study, is as follows:

Model time period	All restrictions	Unsuitability restrictions
1985–2030	$3.0	$1.1
2000–2045	Not estimated	4.7
2020–2065	Not estimated	15.8

The unsuitability restrictions above are calculated as the present discounted value in additional national coal delivery costs, between a case with all restrictions in place and an alternative case with all restrictions (except the unsuitability criteria restrictions) in place. The costs are given in 1985 dollars in billions, discounted to the initial year of each designated time period.

In the empirical analysis, DCAM estimated shifts in regional coal production due to BLM's restrictions by comparing regional coal production patterns between the base case (no restrictions) and the restricted case (all Federal land-use screens are assumed to be in place). Some of the largest regional impacts occur in the Powder River basin of Wyoming and Montana. The market finds this high-producing region very attractive because of low mining costs and low sulfur content, especially in the coal deposits in the Wyoming portion of the Powder River basin where current mining costs are $6.25 per ton (in 1985 dollars) and sulfur contents are as low as 0.2 percent by weight. Current BLM land-use restrictions are quite extensive in this coal basin. The restrictions' large areal extent could affect the current favorable economic conditions and may result in large production shifts in the Powder River basin.

For the base case (no restrictions), the study estimates that coal production in the Wyoming portion of the basin would grow from less than 140 million tons per year in 1985 to about 360 million tons per year by 2025. In the restricted case, it is estimated that that same coal production would reach a peak level of about 280 million tons per year by 2005 then fall to an annual production level of about 140 million tons by 2025. The reduction in cumulative coal production from 1985 to 2030, due to land-use restrictions in the Wyoming portion of the basin is estimated to be 3.5 billion tons. The shift of 3.5 billion tons increases national coal delivery costs as production is relocated to other, higher cost areas. Relocating production, because of land-use restrictions, accounts for a $3 billion national cost differential in present value terms.

A significant proportion of the coal production lost in the Wyoming portion of the basin is shifted into the Montana portion. This shift occurs because mining costs and coal quality for available resources in Montana become more favorable (relative to other producing regions) after the BLM's land-use restrictions are applied. As DCAM estimated, cumulative coal production from 1985 to 2030 in the basin's Montana portion is increased by about 900 million tons or approximately 25 percent of the production lost in Wyoming. DCAM found the Wyoming to Montana coal production shift the largest shift that could occur when BLM's land-use restrictions reduced the coal supply. The report summarizes the regional coal production shifts for all of the regions that BLM's land-use restrictions affect.

The study assessed one set of BLM regulations that result from a specific land-use policy in specific resource

management areas, but DCAM has many other uses. Additional applications could include "first cut" estimates of costs of long-term land-use policy decisions associated with the Federal coal leasing program or of costs associated with the following types of lands: those in U.S. national forests, those the U.S. Environmental Protection Agency withdrew to prevent deterioration of air quality and of visibility in the Western States, those withdrawn from mining due to hazards (subsidence and landslides), and those that are no longer accessible for mining (such as areas that cities and towns or creek and river beds occupy).

INTRODUCTION

The extraction, transportation, and consumption of coal resources is an integral part of the U.S. economy. Coal resources fuel a major portion of electric power generators, as well as industrial boilers and coking plants, and are exported. In 1986, the United States produced 890.3 million short tons of coal; of that, 201.6 million tons, or 22.6 percent, were produced on Federal lands (U.S. Department of Energy, 1988). Coal development on Federal lands has been, for the most part, in the Western States where there are significant quantities of low-sulfur coal resources (U.S. Department of the Interior, 1987). In recent years, as a result of Federal air quality legislation, developing low-sulfur western coal has been emphasized increasingly. As the development of western coal lands has proceeded, conflicts with other valued land uses has occurred. In fact, there has been a concerted Federal effort, in the form of legislation and regulations, to identify potential land-use conflicts and to restrict the availability and development of sensitive lands (Nelson, 1983).

Environmental protection for Federal coal lands has been implemented mainly through the land-use planning procedures established in the Federal Land Policy and Management Act (FLPMA), which was enacted in 1976. Under FLPMA, the Bureau of Land Management (BLM) in the U.S. Department of the Interior (DOI) is required to prepare land-use plans for areas under Federal jurisdiction. One result of BLM's land-use planning procedure, detailed below, is that surface mining is restricted on significant amounts of Federal coal lands in the Western United States. In this regard, the general issue this report addresses is, what are the nation's opportunity costs or additional coal delivery costs as a result of BLM's land-use restrictions?

Generally, the long-term effects of Federal government policies on coal markets, such as coal production restrictions, has been analyzed using cost-minimizing linear programs that forecast demand and supply patterns. Although models such as the ICF, Inc. (1980), Coal and Electric Utilities Model or the U.S. Department of Energy (1984) National Coal Model are useful for forecasting national trends in coal production, they present a simplified description of how the coal market operates at discrete times. This type of model is not well suited for addressing regional (sub-State) issues or the role of resource depletion economic rents and dynamic constraints in determining coal allocation patterns. A model for long-term energy analysis related to the supply of coal must incorporate regional detail and time-dependent features if it is to be useful for policy assessment.

This study extends the scope of previous ones by viewing the coal market as an intertemporal and interregional balance between demand and supply. A dynamic programming model, called the Dynamic Coal Allocation model (DCAM), is used to simulate the U.S. coal market. The solution to the model is a set of coal shipments—which were selected to minimize extraction, transportation, and sulfur dioxide scrubbing costs—from 60 supply regions to 243 demand regions over 45 years. DCAM addresses long-term land-use planning by comparing the increase in national coal delivery costs of various environmental preservation scenarios. Results (provided below) fall into three areas: (1) costs of meeting national coal demands when BLM land-use restrictions are not considered versus the costs when these restrictions are implemented starting in 1985 in selected regions of the Western United States, (2) cost savings in meeting national coal demands assuming BLM land-use restrictions are removed in the future, and (3) a methodology that would allow BLM to compare specific land-use restrictions in specific regions to preserve environmental values at lowest cost.

Even though this study focuses on land-use planning, the study can be viewed more broadly as a demonstration of a method for analyzing the future effects of any specified set of physical, regulatory, or financial constraints on the U.S. coal market. The method involves analyzing a resource market over several decades to understand the full implications of public policy decisions. This long-term focus is essential in describing the evolution of time-linked markets, such as the coal market, where today's decisions affect future options and current economic conditions.

At this time, it is impossible to predict the coal market's long-term future in any absolute sense. Discoveries and inventions, new institutional arrangements, and new views on social needs will alter the future. Such discontinuities in human history are never predictable; no recent methodological advances in computer simulation models or in traditional disciplines have changed this situation. On the other hand, implications of different courses of actions as they occur within specific contexts can be analyzed. New information about events that can alter the future market can then be incorporated into the analysis. Thus, this study should be viewed as part of an ongoing process of developing answers about future tradeoffs in the coal resource market. The specific results of this analysis are most useful as illustrations of the methodology developed.

The report is organized as follows. First, background information on regulations that affect Federal management of coal lands, in particular those regulations involved in land-use planning, is presented. The issue to be examined and the methods employed to estimate the tonnage of coal restricted by application of Federal coal-planning screens are described. Next, a conceptual framework for assessing tradeoffs between coal land preservation benefits and coal development benefits is provided. Following that, a description of DCAM presents the model's main features, including an objective function, constraints, and key conditions satisfied by the cost-minimizing coal allocation pattern determined in the model. The major data sets used in the analysis are then summarized. Finally, the results are presented and followed by a conclusion.

ACKNOWLEDGMENTS

This report is the result of a multiyear project that included significant contributions by a number of persons.

Margaret Johnson undertook the difficult task of processing many of the data sets to estimate coal resources for the base and restricted cases. Her work was one of the most important contributions to the project. Brian Goudreau and Judith Hunter also processed coal data at various stages of the project.

Linda Gheen digitized the land-use restrictions in the Wyoming portion of the Powder River basin and entered the digital data sets into a central computer bank. Meng-Cherng Sun helped to digitize the land-use restrictions in the Montana portion of the Powder River basin. Andre Bush digitized land-use restrictions in other western coal supply regions. This work, which required great skill and patience, made it possible to use geographic information systems technology to obtain the results. Without these efforts, completing the project would have been impossible.

Throughout the project, Tod Huffman organized and analyzed data on a large mainframe computer. Joseph Aquilino and Cam Burgess also made important contributions in this area.

Gerry Lebing developed computerized methods for preparing the more complicated graphs. Figures 1, 2, 3, and 4 in the final report would not have been possible without his help. Brian Schachte also helped with the computer derivation of quantitative estimates and their display. Lewis Boger and Sara Banks provided expert assistance in preparing the figures in the final report.

The comments and advisory inputs of the following are especially noteworthy: Terry Offield on the executive summary, main report, and Appendix A; Carol Molnia for an extremely thorough review of the entire report; Emil Attanasi for insightful comments on economic matters; and M. Devereaux Carter on the interpretation of coal resource data. At the later stages of this project, Thomas Browne made important contributions on coal market economics.

Wendy Budd understood the pioneering nature of computerizing mathematical programming and helped run the programs on the Survey's large mainframe computer. Her support is appreciated.

Special thanks go to Terry Offield for his support throughout the project. His interest in the study made it possible to obtain the resources and time needed for the project.

THE ISSUE

Congress has enacted several laws this century that have guided policies associated with the disposal of coal deposits on public lands. Among others, the Mineral Leasing Act of 1920 and the Federal Coal Leasing Amendments Act of 1976 authorize the Department of the Interior to control most aspects of the development of Federal coal (Nelson, 1983).[2] Although the Department of the Interior has the power to control coal development tightly, Federal coal policy is structured so that prevailing market trends determine the amount of public resources available for development while maintaining the environmental integrity and highest and best use of the public lands.

Because Federal coal lease planning is based on market principles, the quantity of coal made available for lease will depend on the industry's interest for additional resources in all Federal leasing areas. While market participants determine how much coal on public lands is needed, there are locations where the Bureau of Land Management (BLM) temporarily removes significant quantities of Federal coal from the marketplace for alternative uses. Depending on the extent of supply restrictions based on Federal land-use planning, some form of resource reallocation among coal market participants can be expected. Removing these coal resources from potential development could have a lasting economic impact on the current and future national economy. Dynamic Coal Allocation Model (DCAM) can measure the national and regional opportunity costs of this type of supply restriction for 45 years, starting in any given year.

The basis for Federal land-use restrictions lies in the public's desire to protect wildlife and other natural assets. In the last two decades, the BLM has implemented a land-use planning evaluation procedure in response to the

[2]The Department of [the] Interior can determine which particular coal deposits will be developed by its decisions to lease or not to lease. Through "diligent development" and "continuous operation" requirements it can decide the time by which coal mining must begin and the subsequent rate at which it takes place. A statutory requirement for "maximum economic recovery" gives the Department control over the specific coal beds and the total amount of coal mined from a lease. Environmental controls and a general requirement for approval of the mining plan give the Department considerable influence over the kind of mining operation undertaken. (Nelson, 1983, p. 21–22.)

requirements stipulated in the Federal Coal Leasing Amendments Act of 1976 (FLPMA), the Surface Mining and Reclamation Act of 1977, and the National Environmental Policy Act of 1969. This procedure culminates in a Resource Management Plan (RMP). As part of any given RMP process, certain land areas are identified for limited, restrictive, or exclusive use. One outcome of this process is that coal lands that are acceptable for further leasing consideration are identified.

Lands that are subject to coal leasing as dictated under the mineral leasing laws are subject to the requirements of 43 CFR 3420.1. This regulation establishes a four-level screening process. The first screen identifies land with coal development potential. A second screen identifies lands that are environmentally sensitive and separates them from those identified in the first screen. These areas are considered unsuitable for surface mining and should be restricted lands.[3] A list of 20 unsuitability criteria (see table 1) are applied to identify, and thus protect, the Federal lands' most sensitive and valuable features.

The third screen identifies conflicts between coal development and the need to protect any other Federal, State, or local resource not included in the unsuitability criteria, such as areas for recreation and for extracting other resources, such as oil and gas. If the other resources are more important or the impacts cannot be mitigated, the coal lands are removed from further consideration for development. The fourth screen involves consulting with the surface land owners as to their preference regarding coal development. If a significant number of surface owners oppose mining operations, the area is considered suitable for underground mining only.

Substantial amounts of cheap, low-sulfur coal found on Federal lands in places like the Powder River basin in Wyoming and Montana are subject to the screening process and the consequent land-use restrictions that can reduce potential coal development (Buffalo RMP, U.S. Department of the Interior, 1984a, and Powder River RMP, U.S. Department of the Interior, 1984b). Figure 1 illustrates the maximum extent of screens 2 and 3 (unsuitability criteria and multiple-use criteria) on the Powder River basin of Wyoming.

In Wyoming, the Powder River basin contains a multitude of coal beds that extend from outcrops in Campbell and Converse Counties on the east and dip gently west through Sheridan and Johnson Counties. Figure 2 represents the extent of the Powder River coal basin (supply regions 67 and 96) in Wyoming. A substantial portion of the coal is surface minable, even though the beds dip west. Using a maximum depth of 250 feet as the surface minable cutoff, there are approximately 49.2 billion tons of surface minable coal in the four counties. Figure 3 shows the areal extent of the strip minable coal resources in the Powder River basin in Wyoming.

By combining restricted areas with areas of surface minable coal, the extent of the surface minable coal that

Table 1. Unsuitability criteria applied to Federal coal lands

Criterion	Description
1	Existing Federal lands systems such as the National Park System and National Recreation Areas, as examples
2	Existing rights-of-way and easements
3	Buffer zones along rights-of-way and adjacent to communities and buildings
4	Wilderness study areas
5	Scenic areas
6	Lands being utilized for scientific study
7	Publicly owned places on Federal lands that are included in the National Register of Historic Places
8	Federal lands designated as natural areas or as National Natural Landmarks
9	Federally designated critical habitat for threatened or endangered plant and animal species
10	Federal lands containing habitat determined to be critical or essential for plant or animal species listed under State law
11	Bald or golden eagle nest or a buffer zone
12	Bald and golden eagle migration and wintering areas on Federal lands
13	Falcon nesting sites and buffer zones on Federal lands
14	High-priority habitat for migratory bird species
15	Fish and wildlife habitat for resident species on Federal lands, as determined by States
16	Riverine, coastal, and special flood plans necessary to protect life and property
17	Lands that the surface management agency has committed to use as municipal watersheds
18	Federal lands with National Resource Waters as identified by States, and a buffer zone of Federal lands 1/4 mile from the outer edge of the far banks of the water
19	Alluvial valley floor protection
20	Proposed State restrictions on Federal lands

[3]The BLM classifies lands as unsuitable for mining, suitable pending further study, and suitable for mining. This analysis assumed that lands unsuitable for mining and lands suitable for mining pending further study are removed temporarily from potential development—a worst case scenario. For further details on the BLM regulations, see Appendix C, BLM Land-Use Restrictions.

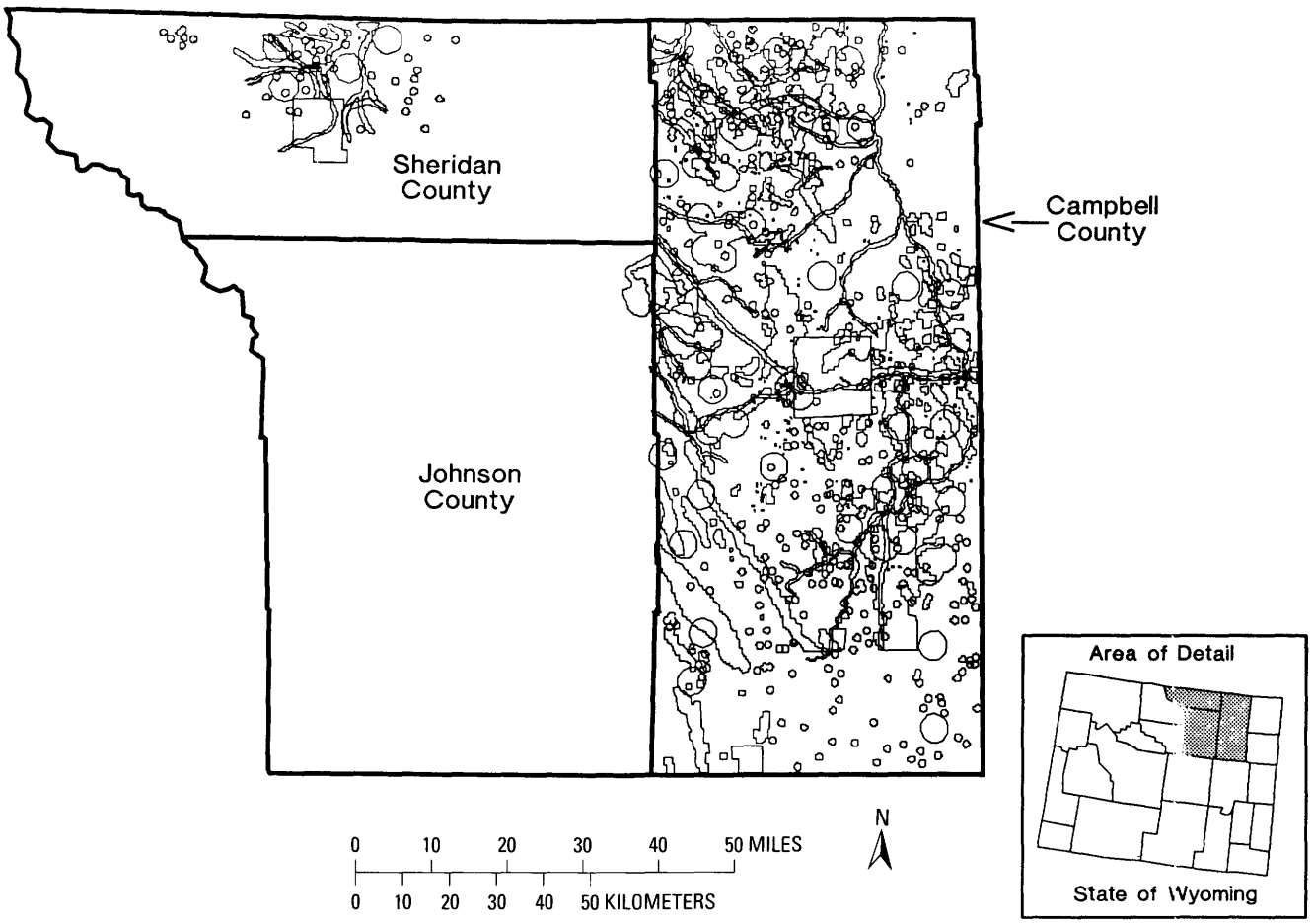

Figure 1. BLM coal land-use restrictions in the Powder River basin, Wyoming (supply regions 67 and 96).

can be removed temporarily from production can be identified by acres and tons restricted. Figure 4 shows the maximum amount of coal lands that are surface minable after all of the BLM land-use planning screens have been imposed. After restricted lands are removed, 36.3 billion tons of coal can be surface mined.

Although coal is an abundant resource, it has qualitative characteristics (for example, sulfur and Btu content) that can vary widely among different beds in a basin and among different basins. These variations govern coal deposits' attractiveness and usefulness in the marketplace. For example, restrictions that limit sulfur dioxide emissions (SO_x) make low-sulfur coal deposits very attractive to U.S. coal markets. A significant portion of the coal resources found in the Western United States contain low amounts of sulfur and can be extracted at a relatively low cost. (Western surface mining is less costly than eastern underground mining.) Depending on where the low-sulfur coal deposits are located and where the land-use restrictions have been established, there will be some level of economic impact on the coal market because the availability of specific low-sulfur coal supplies will be reduced.

CONCEPTUAL FRAMEWORK

This portion of the report will discuss whether developing coal by removing land-use restrictions is preferable to keeping the restrictions in place. If withheld lands have attractive deposits (deposits that ordinarily would be stripped if restrictions were not in place), then the mining costs on the restricted lands are less than or equal to the costs for coal being mined on unrestricted lands. Therefore, when restrictions are lifted, the coal could be mined less expensively than other accessible coal. These cost savings are referred to as coal development benefits. In contrast, if restrictions are kept, environmental assets (such as eagles and alluvial valley floors) would be preserved and values in the form of preservation benefits would accrue to the public. So the question of when to remove or retain restrictions depends on a comparison between coal development benefits and environmental preservation benefits.

The tradeoff between coal development and environmental preservation benefits can be examined by estimating the benefit function for coal development and the benefit function for environmental values preserved when coal is

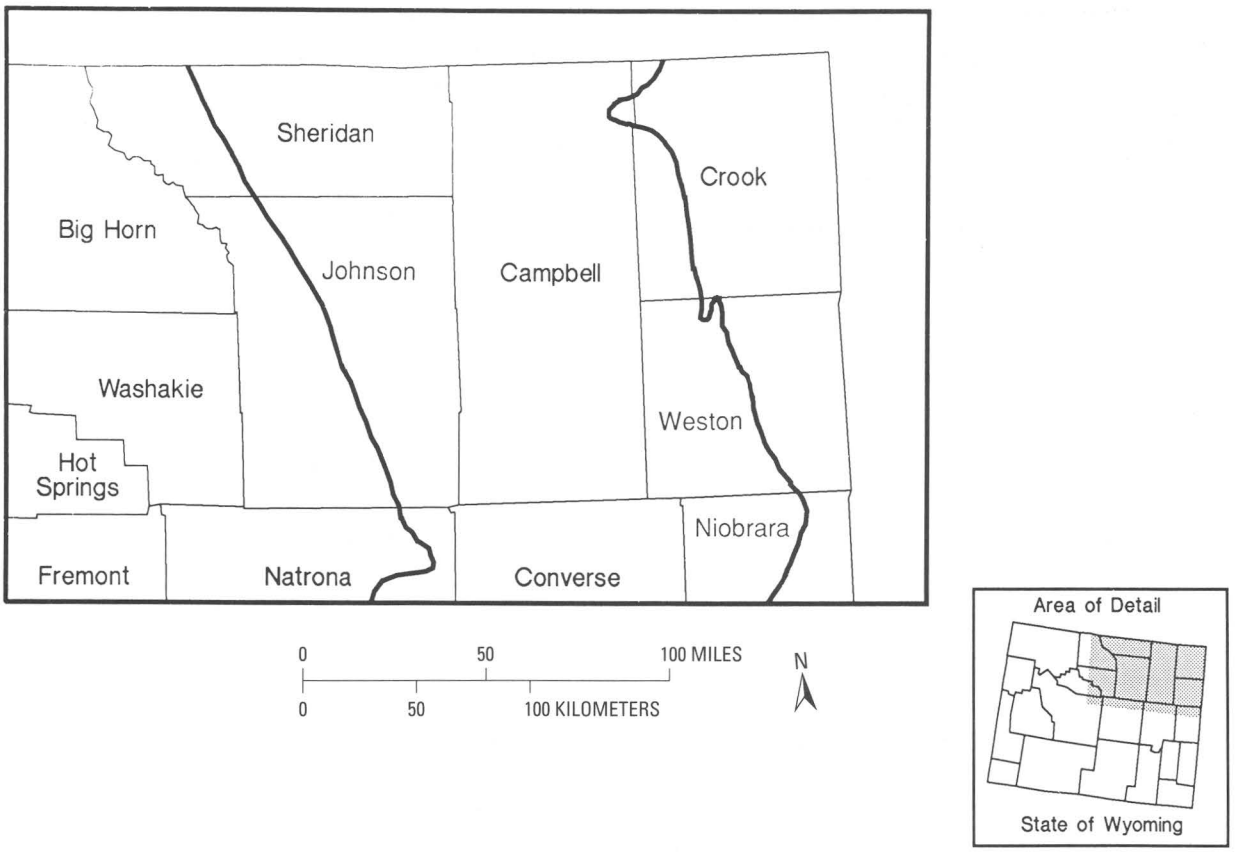

Figure 2. Extent of coal-bearing strata in the Powder River basin, Wyoming.

not extracted.[4] The following function represents coal development benefits:

$$V_t = V_0 e^{at} \quad (1)$$

V_0 is the present value of development benefits at time 0 discounted over some time period (for example, the 45 years from 1985 through 2030). If V_0 grows at rate a (where e, the exponential growth factor, equals 2.7183), then the present value of development benefits would be V_t at time t. The growth rate a reflects the fact that V_t always covers the same planning horizon. Figure 5 shows a plot of V_t. At time t, the present value of coal development benefits (over the time period $(t + 45)$), is V_t. Equation 1 has coal development benefits growing at a constant exponential rate a. An empirical estimate of the coal development benefits function, presented later with the results information, accords well with this simple functional form.

A function for coal preservation benefits[5] is

$$R_t = (R_0/\delta - p)e^{pt} \quad (2)$$

Figure 5 also plots R_t. If R_0 (annual preservation benefit at time 0) is relatively large, then R_t (as fig. 5 shows) could exceed V_t for a period of time. When this occurs, the present value of coal preservation benefits exceeds coal development benefits. The policy implication (in terms of economic tradeoffs) is clear: preserve the land to protect wildlife habitat and other environmental assets, and restrict coal development by setting aside lands from stripping operations.

Once V_t is greater than R_t, the implication for policy is less clear. If a short-term decision is made, then coal development might be chosen. In the short term, coal development benefits exceed coal preservation benefits. If the extent of future technological change and the value of preservation benefits to future generations is uncertain, a

[4]Porter (1982, 1984) provides a similar framework to analyze tradeoffs between environmental preservation benefits and economic development benefits.

[5]R_t is determined as the integral of $\int_t^{\infty} R_0 e^{pt} e^{-\delta t} dt$. Thus, R_t is the present value at time t of preservation benefits growing from R_0 (at time 0) by rate p. The discount rate is δ. The upper limit on the integral is ∞ in accordance with the assumption that preserved wildlife habitat provides benefits forever. If the upper limit is made $t + 45$, equation 2 still remains a good approximation to the present value of preservation benefits for a 45-year planning horizon, to accord with the time frame of equation 1.

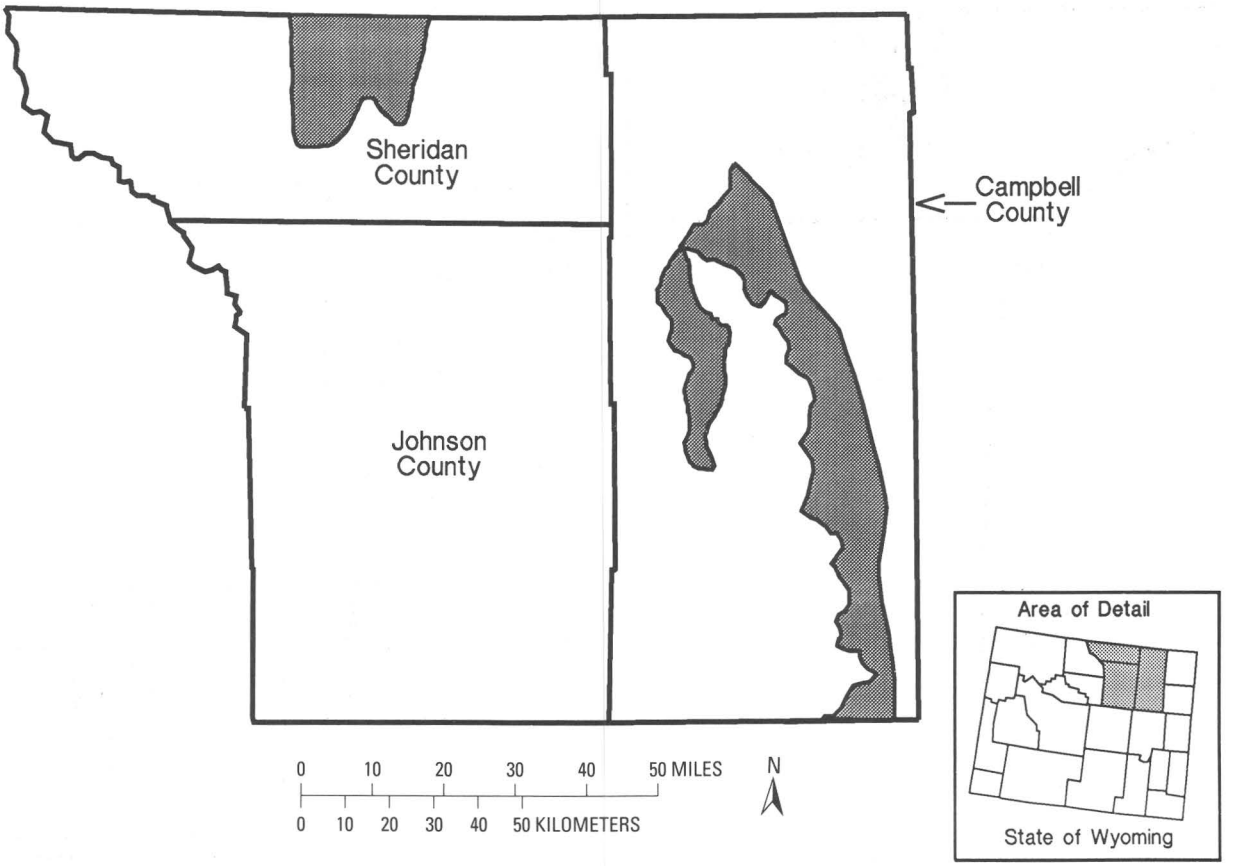

Figure 3. Coal lands in the Powder River basin, Wyoming (supply regions 67 and 96).

logical decision could be to forego shorter term economic gains and not develop the lands (to avoid environmental effects). As a hypothetical situation, figure 5 shows renewed dominance of preservation benefits over development benefits in a later year. This second crossover at time t_2 could occur as a result of (1) improved electric generation technology that reduces the requirements for coal (thus, lowering cost savings or benefits from coal development) and (2) more rapid growth in individuals' willingness to pay for preserved wildlife and aesthetics on coal lands as wildlife stocks and pristine areas dwindle elsewhere.

These concepts provide a framework around which the empirical results are reported. However, estimating preservation benefits in dollar terms (as the current framework requires) is a major task in itself and beyond the scope of this analysis. There are some economic evaluations of wildlife preservation, but they focus on wilderness and wildlife in areas that are not applicable to this study.[6]

[6]However, the existing studies demonstrate economic valuation procedures that are appropriate for establishing dollar values for preservation. See Walsh and others (1984), and Brookshire and others (1983).

Consequently, this study's empirical focus is on the coal development benefits function. What are the Nation's dollar savings in coal delivery costs if the Bureau of Land Management (BLM) removes coal land restrictions (in whole or in part) in 1985? Or in later years? For any particular level of protection for specific environmental assets, how can BLM manage coal land restrictions to achieve the protection at the lowest cost (in terms of national coal delivery costs)?

THE DYNAMIC COAL ALLOCATION MODEL (DCAM)

DCAM is a method to make a "first-cut" estimate of opportunity costs concerning long-term planning issues associated with coal development. DCAM has two important features that help to analyze coal allocation patterns and the opportunity costs of land-use restrictions realistically. First, DCAM has a high degree of regional detail. This feature allows disaggregated analysis and, thereby, credible evaluation of region-specific land-use restrictions. Second, DCAM represents the coal market as a dynamic, or time-

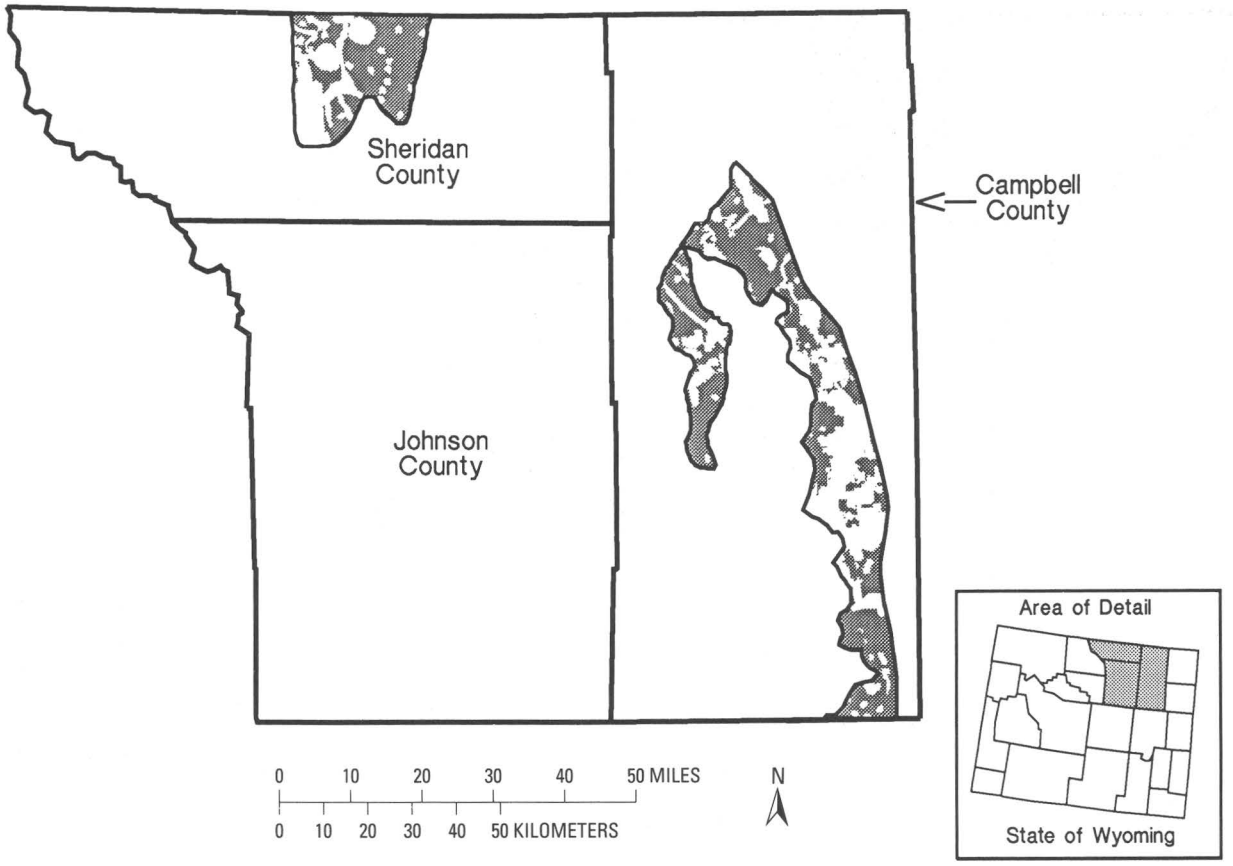

Figure 4. Coal lands available for mining after applying BLM's land-use screens in the Powder River basin, Wyoming (supply regions 67 and 96).

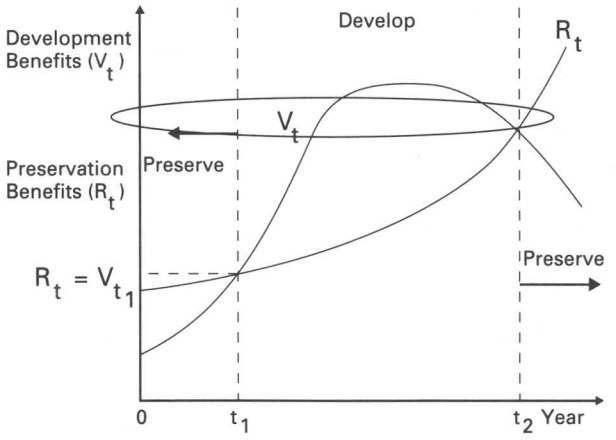

Figure 5. The tradeoff between developing and preserving coal lands.

dependent, allocation system. Consequently, DCAM determines future opportunity costs or coal scarcity rents endogenously because they play a key role in determining the pattern of coal production over time, in correspondence with actual market processes.

DCAM allocates coal in the United States over 45 years[7] to minimize total mining, transportation, and scrubbing costs (in present value terms) while meeting projected coal demands and operating within allowable SO_x emission standards, available supplies of minable coal, and shipping capacities for river locks and transmission lines. DCAM assumes technological change in coal production. Productivity improvements are incorporated at a level that keeps aggregate national average coal mining costs constant (consistent with recent historic performance). DCAM, though, assumes no technological change in coal distribution or uses. However, in the out years, the model includes production of synthetic fuels from coal. DCAM has these main structural features:

[7]A 45-year planning horizon is long enough to measure virtually all of the discounted cost differences between alternative policy cases. Any values beyond the 45-year horizon would be very small due to discounting.

- 60 coal supply regions, each represented by a step function of up to 12 steps relating minable tonnage to mining cost by sulfur and Btu content,
- 243 coal consuming markets that represent Environmental Protection Agency (EPA) regional air sheds (AQCR's—air quality control regions), each having one or more of eight possible types of coal demand, including electric utility and industrial boiler demands, export demands, metallurgic demands, and synfuel demands,
- 5 modes of coal transportation: mixed freight rail, unit train, waterway, intermodal transshipments between water and rail, and electric transmission lines (mine mouth power plants generate electricity that is shipped as tonnage equivalents over high-voltage transmission lines), and
- 6 planning periods spanning 45 years. (In the discussion on results for the base and restricted cases, each time period is represented by its central year—1988, 1993, 1998, 2005, 2015, and 2025.)

DCAM uses equation 3a to estimate the minimum total cost of coal market transactions (represented as the objective function K) for all i origins and j destinations subject to a set of constraints (conditions 3b-3e) imposed on coal market transactions:

$$\min K=\sum_{t=1}^{T}\left(\frac{1}{1+r}\right)^{t-1}\left[e_t(x_t, z_t)+n_t(x_t, z_t)+b_t(x_t, z_t)\right] \quad (3a)$$

subject to

$$\alpha x_t \geq D_t \qquad (P_t) \qquad (3b)$$

$$\beta x_t \leq 0.0072 D_t \qquad (B_t) \qquad (3c)$$

$$x_t \leq L \qquad (C_t) \qquad (3d)$$

$$x_t \leq E_t \qquad (M_t) \qquad (3e)$$

$$x_t \geq 0$$

where

K = total cost of extracting, transporting, and scrubbing coal for 45 years

r = 0.8, the rate of discount

T = final year in the planning horizon

e_t = cost of extraction in time t ($/ton)

x_t = tons of coal extracted in a time period t

z_t = cumulative extraction up to t

n_t = cost of transportation in time t ($/ton)

b_t = cost of scrubbing coal at a market in time t($/ton)

α = factor to convert coal in actual tons to coal in normal tons, in terms of Btu ((Btu/ton$_i$) /24,000,000)

D_t = coal demand at each destination in normal tons (tons containing 24,000,000 Btu/ton)

β = fraction of sulfur in the coal by weight at the coal origin adjusted for sulfur removal by scrubbing

0.0072 = EPA regulations (new source performance standards) for sulfur discharges at a consumption market (tons of sulfur per normal ton of coal)

L = capacity in tons at a waterway lock

E_t = electric transmission line capacity (tons of coal equivalent)

The constraints and their dual variables (symbols in parentheses on the right side of the inequalities) have the following interpretations:

- Inequality 3b. Coal shipments (transformed into Btu units by α) must be large enough to satisfy demand (in Btu units = D_t). P_t is the market clearing price of coal. P_t is estimated to be the change in the objective function if demand is changed by one unit.
- Inequality 3c. Tons of sulfur discharged cannot exceed the demand region's SO_x limits. The factor β converts coal to tons of sulfur; it equals the sulfur fraction (by weight) of coal adjusted by sulfur scrubbing removal percentage. The factor 0.0072 converts demand (in Btu terms) into tons of sulfur allowed under a Federal new source performance standard (NSPS) of 1.2 lbs of SO_x per million Btu.[8] B_t is the market clearing price that can be charged for each ton of sulfur emitted. DCAM estimates the change in the objective function if the sulfur limit is changed by 1 ton. In other words, B_t is the marginal opportunity cost of satisfying an SO_x discharge limit.
- Inequality 3d. Tons of coal shipped cannot exceed waterway lock capacities L. C_t is the market clearing price that the U.S. Corps of Engineers can charge for each ton of coal shipped through river locks that have reached their capacity. DCAM estimates the change in the objective function if lock capacity is changed by 1 ton. Thus, C_t is the marginal opportunity cost of river lock capacity if locks are utilized fully.
- Inequality 3e. Tons of coal shipped cannot exceed electric transmission capacities E_t. Similar to dual values of C_t and M_t, E_t is the marginal opportunity cost of mine mouth power plant transmission line capacity, when transmission lines are utilized to full capacity.

A coal shipment must satisfy the following condition to be in DCAM's solution set:

$$P_t(1+r)^{t-1}=\frac{1}{\alpha}\left[\frac{\partial e_t}{\partial x_t}+\frac{\partial n_t}{\partial x_t}+\frac{\partial b_t}{\partial x_t}\right. \quad (4a)$$

$$+ (1+r)^{t-1}(\beta B_t+C_t+M_t) \quad (4b)$$

$$\left.+\sum_{q=t+1}^{T}\left(\frac{1}{1+r}\right)^{q-t}\left(\frac{\partial e_q}{\partial z_q}\frac{\partial z_q}{\partial x_t}+\frac{\partial n_q}{\partial z_q}\frac{\partial z_q}{\partial x_t}+\frac{\partial b_q}{\partial z_q}\frac{\partial z_q}{\partial x_t}\right)\right] \quad (4c)$$

[8] Other Federal SO_x standards are implemented: (1) by shipping coal only from certain supply regions that can satisfy State Implementation Plan standards and (2) by always scrubbing coal to satisfy SO_x standards for boilers under Revised New Source Performance Standards (discussed further in the portion on data sources).

where

$1/\alpha$ = factor to convert right side values into \$/ton of coal containing 24-million Btu/ton and

$(1+r)^{t-1}$ = factor to move discounted values forward to obtain undiscounted values in year t.

The right side of expression 4a is the sum of marginal coal extracting, transporting, and scrubbing costs. Expression 4b is static economic rent associated with SO_x, lock, and transmission capacities. Expression 4c is dynamic coal scarcity rent or the present value of future costs resulting from current extraction.[9] These scarcity rents, calculated by DCAM, provide an economic cost that links development of coal deposits across time with actual market clearing processes.

The sum of all terms on the right side of equation 4 is full marginal cost. By equation 4, a coal shipment can enter the optimal solution at a tonnage value above zero only if its full marginal cost equals the demand region's market price (demand shadow value). Also, by equation 4, coal received at a demand region from different supply regions must have the same delivered cost in dollars per unit of Btu. Appendix A contains DCAM's complete mathematical derivation, including a modular construction of how the model's individual parts fit together.

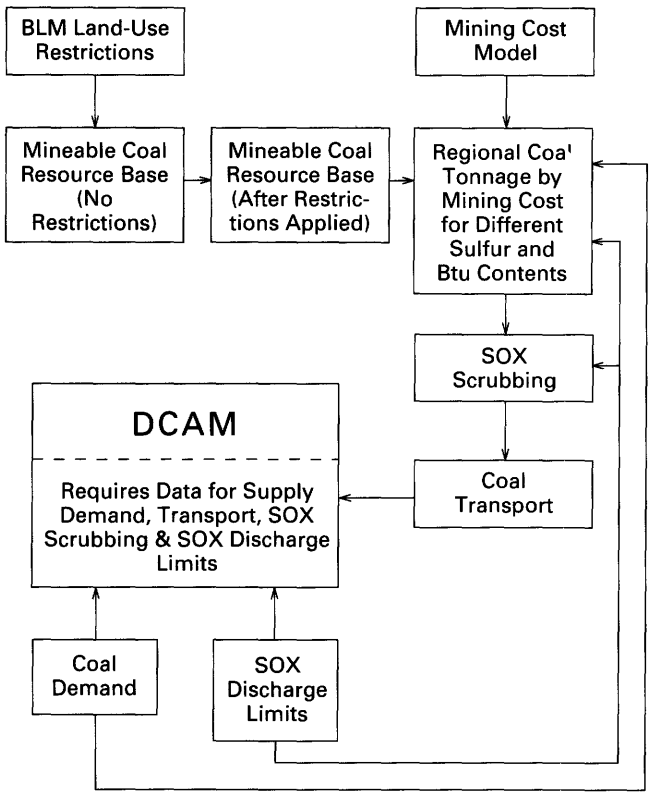

Figure 6. DCAM data required.

DATA SOURCES

To conduct a simulation that examines an individual policy, such as BLM's long-term land-use plans, DCAM needs several types of information. This portion of the report summarizes the types of data compiled to assess the economic impact of Federal land-use restrictions. The data sets compiled for DCAM include all those outlined in figure 6. Analyzing other policy issues may require substituting alternative data sets. Appendixes B through I detail how to use the necessary data to examine a supply restriction issue.

Coal Supply

The minable coal resource base is a county-level compilation of coal resource tonnage estimates split into underground and surface minable categories. For most supply regions, the Demonstrated Reserve Base (DRB) published by the U.S. Department of Energy (1982a, 1982b, 1982c, and 1986) provided the estimates DCAM uses. However, in selected regions of the Western United States (shown in fig. 7) where the BLM has applied land-use restrictions, the DRB estimates of surface minable coal have been replaced with estimates from the National Coal Resources Data System (NCRDS), a national geographic information system (GIS) maintained by the U.S. Geological Survey.

NCRDS contains point-located coal thickness and depth data. The first step in estimating surface minable coal resources, using NCRDS, is to define surface minable coal as being all coal beds no deeper than 250 feet. The total

[9]Static economic rents are the cost savings provided by a scarce resource (such as the environment's limited SO_x assimilative capacity) compared to the next best alternative (such as a stack gas scrubber installed to reduce SO_x discharges). The term "static" refers to the fact that the resource constraint which limits economic choices is reached within a short time, such as a year. For example, there is no cumulative build-up (over a number of years) of SO_x discharges in the atmosphere. Instead, the atmosphere can assimilate SO_x emissions by recycling SO_x to other natural sinks (land, water, and vegetation). Thus, the atmosphere can absorb a steady year-by-year flow of SO_x discharges up to the limits of its renewable assimilative capacity. Until that annual limit is reached, the coal market (as simulated by DCAM) is not forced onto the higher cost options required once the assimilative capacity is reached. The atmosphere's capacity to assimilate SO_x discharges is the static rent that accrues to theassimilative capacity. A dynamic rent, like a static rent, is a measure of cost savings that a particular resource (such as limited amounts of low-sulfur coal) can provide compared to the next best alternative. However, in contrast to a static rent, a dynamic rent occurs over a number of years and arises because a limited, nonrenewable resource is being used up. For example, a specific block of low-sulfur coal can be depleted, never to be renewed. To meet demands, the coal market then brings the next lowest cost coal deposit into production. The discounted increase in costs avoided (a cost savings) due to the availability of the low-sulfur coal is the dynamic rent for the specific low-sulfur deposit. Static and dynamic rents are the increases in costs (associated with moving to the next best alternative) that occur when a renewable flow capacity (static rent) and a nonrenewable stock capacity (dynamic rent) are reached.

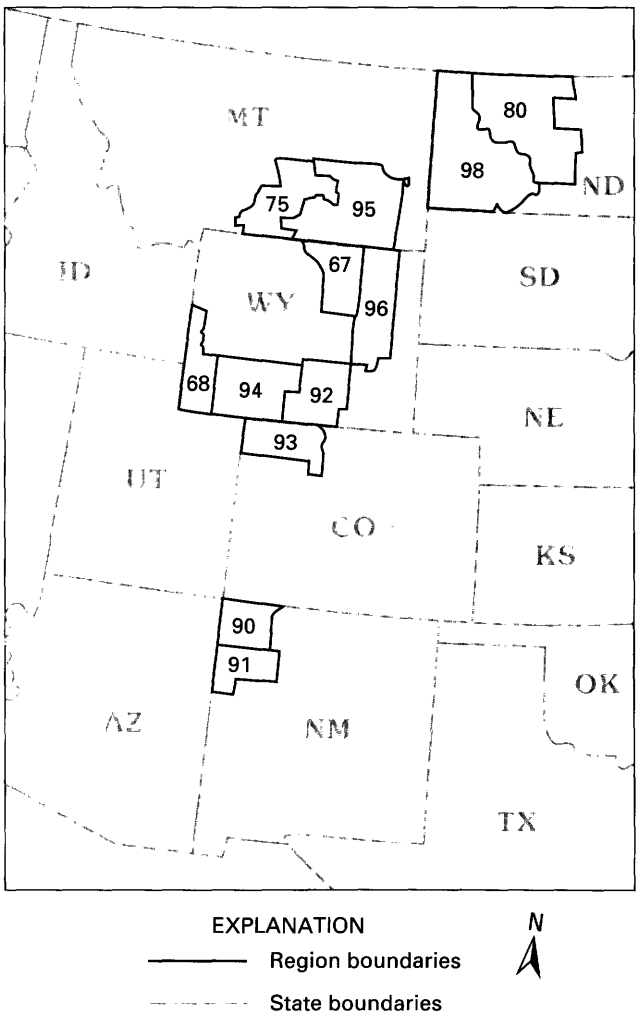

Figure 7. Western coal supply regions where BLM has applied land-use restrictions.

thickness data of coal 250 feet deep or less are then contoured to produce a coal thickness map. Applying a density factor (tons per acre-foot) to coal thickness by areal extent estimates each region's total surface minable coal tonnage. The NCRDS estimates are larger and considered more credible than the DRB estimates (see table 2) because the NCRDS bases its estimates on geographically located data and geotechnical analysis.

This study evaluated how the BLM land-use restrictions in the 12 western coal supply regions (shown in fig. 7) affected coal tonnage.[10] To accomplish this evaluation, the boundaries of the areas restricted under the various BLM categories were digitized and entered into the NCRDS. New estimates of coal tonnage, excluding the restricted areas as designated in the BLM Resource Management Plans (see Appendix C for further details), were then made.

Table 3 shows the estimates of coal tonnage for each of the 12 regions. The estimates in the base case column assume unrestricted land use. The estimates in the restricted case column show the tonnage available after all BLM screens (unsuitability criteria, multiple use, and surface owner consent) were applied. National surface minable tonnage is reduced by 67 billion tons, or by about 27 percent of the unrestricted national total. The estimates in the final column show the available tonnage if the unsuitability criteria restrictions are lifted. Compared to the middle column, an additional 14 billion tons of coal are made available for lease and production when the unsuit-

Table 2. Surface minable coal in Western United States coal supply regions affected by BLM's land-use restrictions (million short tons)

Supply region	Estimate used in DCAM	Estimate used in DRB
67, Sheridan & Johnson Counties, Wyo.	11,600[1]	1,244
68, Rock Springs, Wyo.	1,954[1]	1,125
75, Forsyth, Mont.	855[1]	507
80, Minot, N. Dak.	2,130[2]	1,201
90, San Juan County, N. Mex.	8,286[1]	2,221
91, McKinley County, N. Mex.	740[1]	277
92, Carbon County, Wyo.	6,478[1]	522
93, Moffat & Routt Counties, Colo.	3,853[3]	3,853
94, Sweetwater County, Wyo.	1,255[3]	1,255
95, Powder River basin, Mont.[4]	82,985[1]	42,518
96, Powder River basin, Wyo.[5]	37,600[1]	22,486
98, Fort Union, N. Dak.	15,620[2]	8,634

[1]Estimated using data from the National Coal Resources Data System. The tonnage estimates include total coal thickness, for all coal beds no deeper than 250 feet for all types of land ownership.

[2]Estimated by the Bureau of Land Management (U.S. Department of the Interior, 1986).

[3]Demonstrated Reserve Base estimates.

[4]Trent (1986) estimated unleased Federal strippable coal (up to a stripping ratio of 10:1) in the Montana portion of the Powder River basin to be about 38 billion tons, assuming a recovery factor of 85 percent. Consequently, unrecovered coal (in the ground) is estimated to be about 45 billion tons. This estimate can be adjusted up to 67 billion tons by accounting for coal occurrences on non-Federal lands. (More than one-third of surface minable coal lands in the Montana portion of the Powder River basin are under non-Federal ownership.) This study's estimate of about 83 billion tons is comparable to the adjusted estimate of 67 billion tons.

[5]This study's estimate of strip minable coal for the Wyoming portion of the Powder River basin (supply regions 67 and 96) is about 50 billion tons compared to Trent's (1986) estimate of 80 billion tons. However, Trent includes coal as deep as 500 feet whereas this study includes coal as deep as 250 feet. Since the Wyoming portion of the basin (unlike the Montana portion) has abundant coal 250 to 500 feet down, it is expected that this study's estimate for the Wyoming portion will be less than Trent's estimate.

[10]Some additional areas in Colorado were not analyzed because BLM has not finished applying its coal land-use screens. The restricted tonnage in the additional areas is likely to be small.

Table 3. Surface minable coal resources, alternative land-use restriction cases (million short tons)

Supply region	Base case	Restricted case[1]	Unsuitability criteria restrictions eliminated
67, Sheridan & Johnson Counties, Wyo.	11,600	9,700	11,289
68, Rock Springs, Wyo.	1,954	1,950	1,950
75, Forsyth, Mont.	855	460	465
80, Minot, N. Dak.	2,130	1,360	1,640
90, San Juan County, N. Mex.	8,286	8,210	8,264
91, McKinley County, N. Mex.	740	740	740
92, Carbon County, Wyo.	6,478	4,300	5,940
93, Moffat & Routt Counties, Colo.	3,853	3,750	3,800
94, Sweetwater County, Wyo.	1,255	1,170	1,240
95, Powder River basin, Mont.	82,985	40,200	43,466
96, Powder River basin, Wyo.	37,600	26,600	30,800
98, Fort Union, N. Dak.	15,620	7,900	10,700
Total	173,356	106,340	120,294
National Surface Resources	244,501	177,489	191,443

[1]In supply regions 80, 93, 94, and 98, estimates of coal resources for the restricted case are based on a proportion of the number of acres in the restricted case relative to the base case for each resource management area. The base case tons (from table 2) are multiplied by this proportion to estimate a restricted case tonnage for each of these supply regions. The estimates of base case tons and acres for the base and restricted cases are taken directly from the relevant BLM resource management plans.

ability criteria restrictions are lifted but the multiple use and surface owner consent restrictions are maintained.

Regional coal supply is represented in a series of step functions that shows tonnage at a specified Btu and sulfur content for a given mining cost. The mining cost, estimated in a cost engineering model, is determined on the basis of seam depth, seam thickness, overburden ratios (for surface minable coals only), mine size distribution, recovery factors, and financial factors. Supply schedules are compiled, with and without land-use restrictions, for each region (see Appendix D for details). Figure 8 shows the supply schedules for most of the Powder River basin (regions 95 and 96), with and without land-use restrictions. The land-use restrictions reduce the amount of coal available at each step of the supply schedule. For example, in region 95, there are about 60 billion tons of coal available at a mining cost of $25 per ton or less. When land-use restrictions are implemented, the available tonnage in this price range is reduced to about 32 billion tons.

SO_x Regulations

DCAM incorporates three sets of environmental regulations to limit sulfur dioxide discharges in accordance with Federal and State pollution control regulations (see Appendix H for details). The regulations are those established under State Implementation Plans (SIP), Federal new source performance standards (NSPS), and Federal revised new source performance standards (RNSPS) (see table 4). DCAM tracks coal going to SIP boilers using a 1985 inventory of coal shipments to SIP boilers, a tally of the years when boilers came on-line, and a boiler age-utilization schedule. In DCAM, SIP boilers are required to receive coal from the same supply regions as they did in 1985. The coal shipped from the fixed supply regions is required to have a sulfur level that meets the regional SIP limit. NSPS standards are met in DCAM by burning low-sulfur coal, installing stack gas scrubbers, or by mixing control strategies. At the demand region (point of coal combustion), SO_x discharges in the DCAM runs cannot exceed the NSPS limit of 1.2 lb of SO_x per million Btu. RNSPS boilers are required to remove at least 70 percent of SO_x from their stack gas, ranging up to a removal level in excess of 90 percent to meet specific discharge limits (refer to table 4). When SO_x scrubbing is required (for RNSPS boilers) or scrubbing is the lowest cost (for NSPS boilers), DCAM adds an appropriate scrubbing charge to coal delivery costs. Appendix E describes the cost engineering model DCAM uses to estimate SO_x scrubbing cost.

Coal Transportation

DCAM has more than 5,000 coal transport rates, covering 5 transport modes, from its supply regions to its demand regions. Unit trains are allowed as a transport mode only if annual shipments exceed 500,000 tons. DCAM has a network for waterway transportation to track barge shipments through locks which have limited capacity. The model identifies certain electric transmission corridors, and transport of coal equivalents from mine mouth electric generation plants is limited to these corridors (see Appendix F for details).

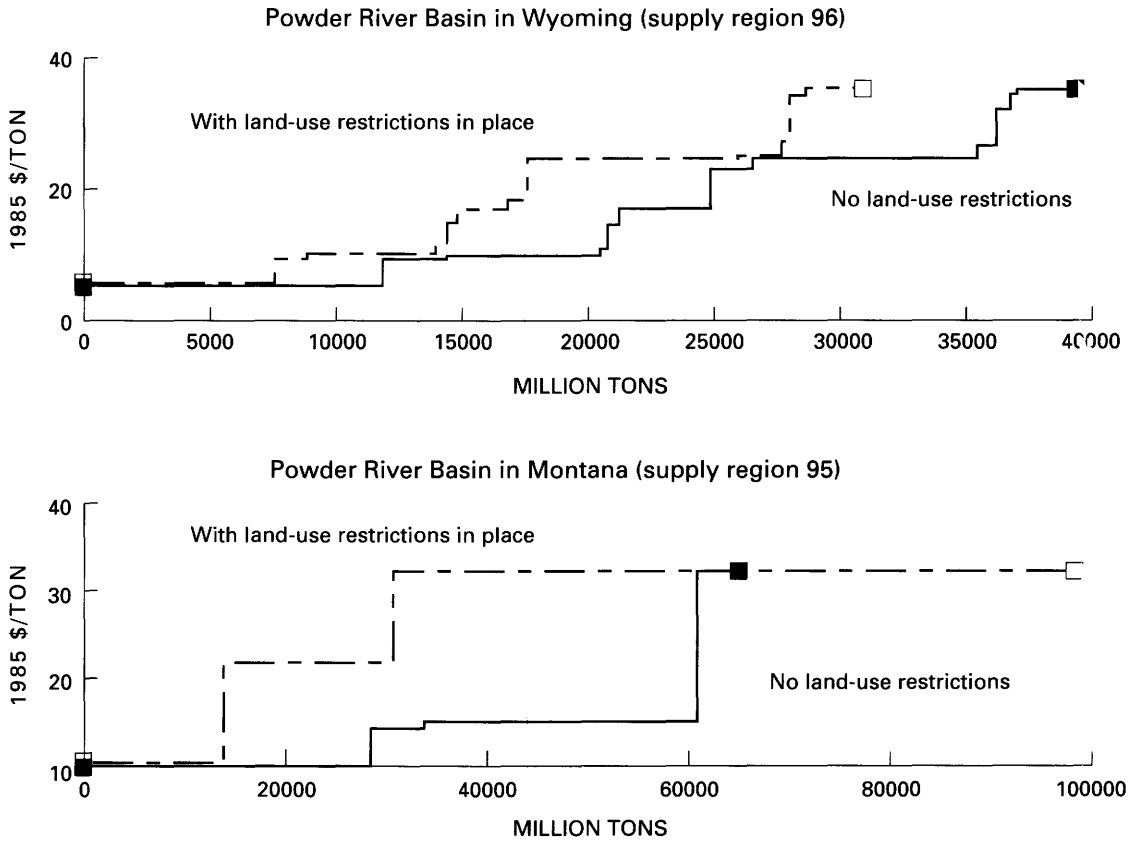

Figure 8. Effect of BLM coal land-use restrictions on deliverable coal tonnage in the Powder River basin, Wyoming.

Coal Demand

DCAM includes a coal demand component. Demand is divided into eight types of coal utilization: (1) in SIP boilers to generate steam and heat for electric power production and (2) industrial uses, (3) in NSPS boilers to generate steam and heat for electric power generation and (4) industrial uses, (5) in RNSPS boilers to generate steam for electric power production, (6) for export to other countries, (7) for metallurgic uses, and (8) for conversion into syngas and synliquids. Figure 9 shows national coal demand projections for these six categories. Demand is entered into DCAM in units of Btu. To convert tons of coal shipped from supply regions into Btu units, a regional Btu factor is used to tally shipments against the demand target. Export and metallurgic demand is met only by low-sulfur and high-Btu content coals. Appendix I contains a detailed description of current demands and a derivation of projections for each demand region.

RESULTS

Following are the results generated by applying DCAM to the five pairs of alternative land-use restriction cases outlined in figure 10.

The total discounted difference in extraction, transportation, and scrubbing costs (1985–2030) between the restricted and base cases is about $3 billion (1985 dollars). These additional national coal delivery costs result from having 67 billion fewer tons of surface minable coal available in the restricted case as compared to the base case (as table 3 showed). Figure 11 shows the annual cost difference. In the initial time period (1986–1990, plotted at year 1988) and until 1998, the annual cost difference is about $20 million. After 1998, the cost difference grows at about 17 percent per year and reaches $1.5 billion per year by 2025. The discounted sum (at 8 percent) of the area under the cost difference schedule is the present value difference of $3 billion.

Figure 11 also shows the difference in revenues between the restricted and base cases. The revenue difference includes the cost difference plus differences in static rents (due to SO_x discharge limits and lock and transmission capacity limits) and the difference in dynamic scarcity rents (due to economic coal depletion). If consumers paid all rents (for example, the consumers of coal-fired electric energy), then the revenue difference is the consumers' additional outlay due to BLM's coal land-use restrictions.[11]

[11]Rent capture or avoidance of rent payment depends on market participants' bargaining strength. Consumers may not have to pay all rents. Therefore, the revenue difference in figure 11 is consumers' maximum additional outlay.

Table 4. SO_x discharge limits for coal-fired boilers

A. Electric Utility Boilers
State Implementation Plans
• Boilers with construction start-up dates earlier than August 1971 are required to meet the SIP standards of individual States. SIP's are established to meet national ambient air quality standards set in the Federal Clean Air Act. SIP standards vary by State and by boiler within a State.
• Any method of compliance is allowed, including burning low-sulfur coal, SO_x scrubbing, and combinations thereof.
New Source Performance Standards
• Boilers with construction start-up dates after August 1971 and before October 1978 are required to meet a Federal SO_x discharge standard of 1.2 lb of SO_2 per million Btu heat input. Any method of compliance is allowed, including burning low-sulfur coal, SO_x scrubbing, and combinations thereof.
Revised New Source Performance Standards
• A Federal regulation requires boilers with construction start-up dates after October 1978 to apply flue gas desulfurization technology (currently SO_x scrubbing) to remove a minimum of 70 percent of SO_2 from the boiler flue gas. Scrubbing at less than 90 percent (but no less than at 70 percent) is allowed if a discharge standard of 0.6 lb of SO_2 per million Btu heat input can be met. If the scrubbing removal level is 90 percent or higher, boilers are allowed to discharge 1.2 lb of SO_2 per million Btu heat input.
B. Industrial Boilers
State Implementation Plans
• Boilers on-line prior to 1985 are required to meet individual State SIP standards.
• Small boilers (heat input not more than 25,000 tons of coal per year containing 24 million Btu per ton) are required to meet SIP standards in all years. This applies to small boilers on-line prior to and after 1985.
New Source Performance Standards
• Large boilers, on-line after 1985, are required to meet a Federal discharge standard of 1.2 lbs of SO_2 per million Btu heat input. Large boilers are defined as boilers with a heat input greater than 25,000 tons of coal per year containing 24 million Btu per ton. Any method of compliance is allowed, including burning low-sulfur coal, SO_x scrubbing, and combinations thereof.

The coal market (as DCAM simulates) anticipates the future effects of reduced coal supplies due to land-use restrictions. Early on, rents begin to rise so that the attractive coal remaining after implementing the restrictions (such as in Powder River basin, Wyoming coal) is allocated slower (compared to the base case) to achieve minimum national coal delivery costs. Higher rents are the economic incentive to achieving this desirable outcome. In 1988, the revenue difference is $400 million per year in 1985 dollars. The annual revenue difference increases over time at a rate of 6.3 percent and reaches $4 billion by the year 2025.

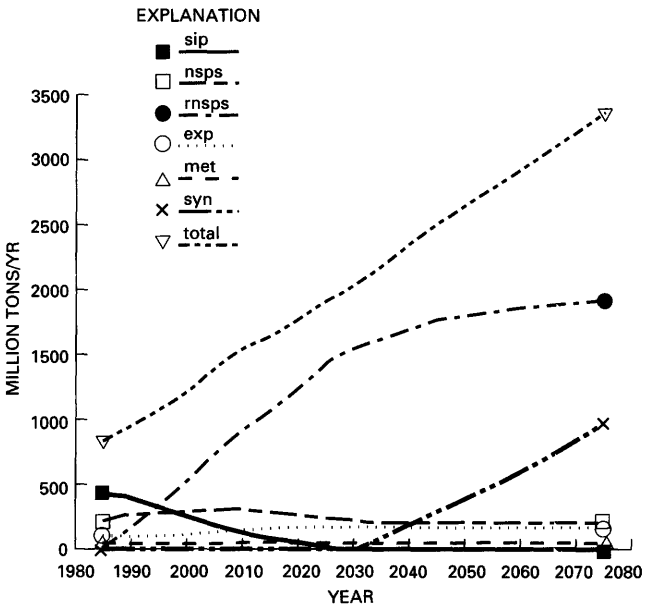

Figure 9. National projections of coal demand.

In the DCAM solution, coal demand equals supply in each regional demand market. Figure 12, part A, shows a demand curve,[12] a supply curve, and a step cost function for a particular coal demand market. The units on the vertical axis are dollars per ton (1985 dollars); the units on the horizontal axis are tons per year. The step cost schedule shows delivered cost (the sum of mining, transporting, and scrubbing costs) for each ton of coal delivered to the market. Static and dynamic rents (in 1985 dollars per ton) are added to the step cost schedule to obtain the supply schedule (that is, full marginal costs for each ton). The market clears where the demand and supply schedules intersect at price p^* and quantity q^*. Figure 12, part B, shows what happens to market equilibrium when land-use restrictions raise delivered costs and rents. The schedules subscripted with b represent a base case without restrictions; those subscripted with r represent a case when land-use restrictions limit coal access and increase delivered coal costs. The base case schedules are duplicates of the schedules in part A of figure 12.

Land-use restrictions limit coal access and increase delivered costs. Since only certain regions have land-use restrictions, delivered costs do not increase for every block of coal entering a regional market. The single cross-hatched area in figure 12, part B, represents an increase in total delivered coal costs due to land-use restrictions. The land-

[12]The demand curve is vertical because coal demand is determined outside DCAM and brought to the Market Simulation Model as a constraint (see appendixes A and I for details).

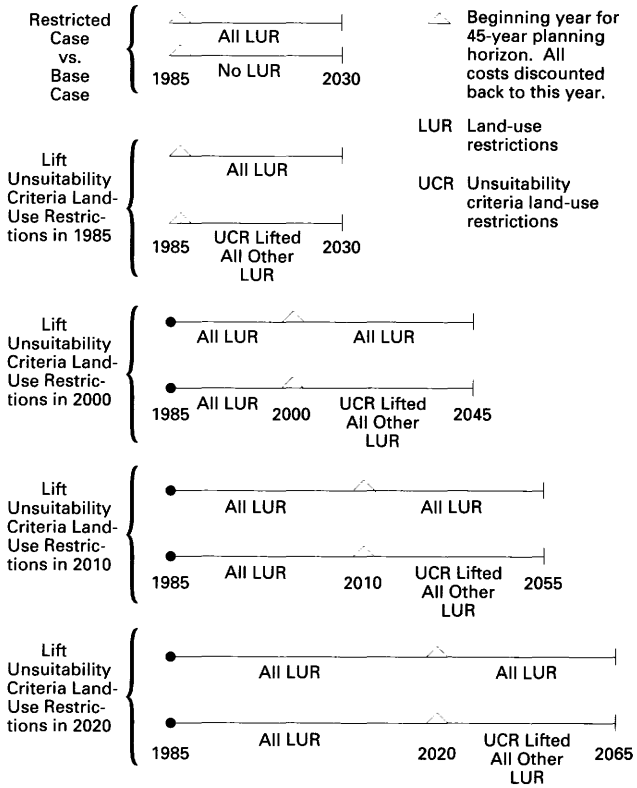

Figure 10. Alternative land-use restriction cases.

use restrictions also raise rents to slow the extraction rate of the now-more-limited, economically attractive coal deposits. When higher rents are added to a higher delivered cost schedule (for the last block of coal to enter the market), the supply schedule is raised and the equilibrium coal price goes up to p_r. Every ton delivered to the market is sold at the new price. Consequently, after land-use restrictions are implemented, revenues increase in the amount represented by the double cross-hatched area in part B of figure 12.

Figure 12 demonstrates why coal revenues (or consumer payments) can increase by more than delivered costs when land-use restrictions are implemented. As shown, all coal, irrespective of whether land-use restrictions limit its access, can earn higher rent after the restrictions are applied. In contrast, delivered costs increase only for those coal supply regions that land-use screens affect directly. The DCAM estimates—the difference in annual revenues being larger than the difference in annual delivered costs —are consistent with the results shown in figure 12.

These comparisons show that the opportunity cost of BLM's coal land restrictions are modest until the mid-1990's. Thereafter, annual opportunity costs grow at rates approaching 17 percent. Revenue differences, in contrast, already approach several hundred million dollars per year for coal consumers and could climb to as much as $4 billion per year by 2025.

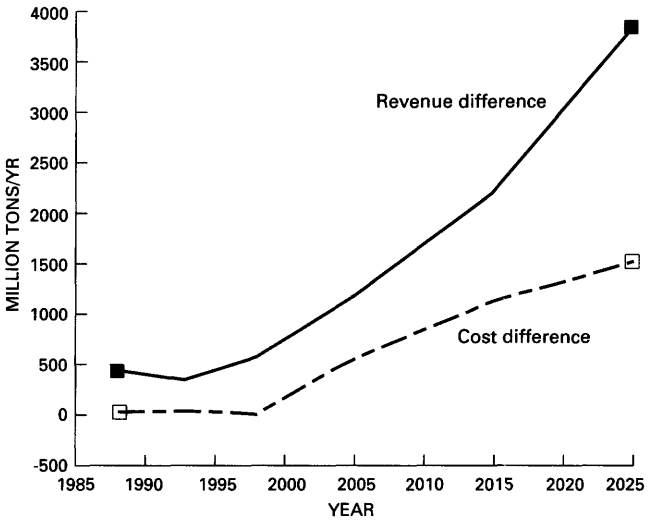

Figure 11. Revenue and cost differences, restricted case over base case.

Table 5 shows regional coal production shifts, restricted versus base case. The biggest decreases, as DCAM simulated, occur in part of the Powder River basin in Wyoming. (Production has a net reduction in regions 67 and 96.) Cumulative coal output (1985–2030) in the Powder River basin, Wyoming, falls by 3.5 billion tons as a result of BLM's land-use restrictions. Surprisingly, one of the biggest gainers is the Powder River basin in Montana. Although this region has a large amount of restricted coal, it contains a larger resource base and more favorable economics compared to the coal available after restrictions in the Powder River basin, Wyoming. Cumulative production in Powder River basin, Montana, increases by 879 million tons. As table 5 indicates, coal production lost due to the land-use restrictions in North Dakota and Wyoming is picked up in roughly equal shares by increased output in the Eastern United States, Colorado, New Mexico, and the Northern Great Plains.

Figures 13 and 14 provide a time profile of production shifts in Wyoming and Montana. As figure 13 indicates, the rate of production begins to fall off in Wyoming beginning about 1995, but the biggest differences occur after 2005. In the base case, Wyoming coal production decreases slightly for about 10 years beyond 2005 and then increases. In the restricted case, Wyoming coal production reaches a peak annual production of 300 million tons around 2005, then declines steadily thereafter. In Montana (see fig. 14), coal production increases substantially in the base and restricted cases from 1985 to 2030. But after 2000, coal production grows faster in the restricted case because the Powder River basin of Montana is a production gainer when BLM's land-use restrictions are kept.

Figure 11 indicates that BLM's coal land restrictions have opportunity costs after 1998, but the figure falls short

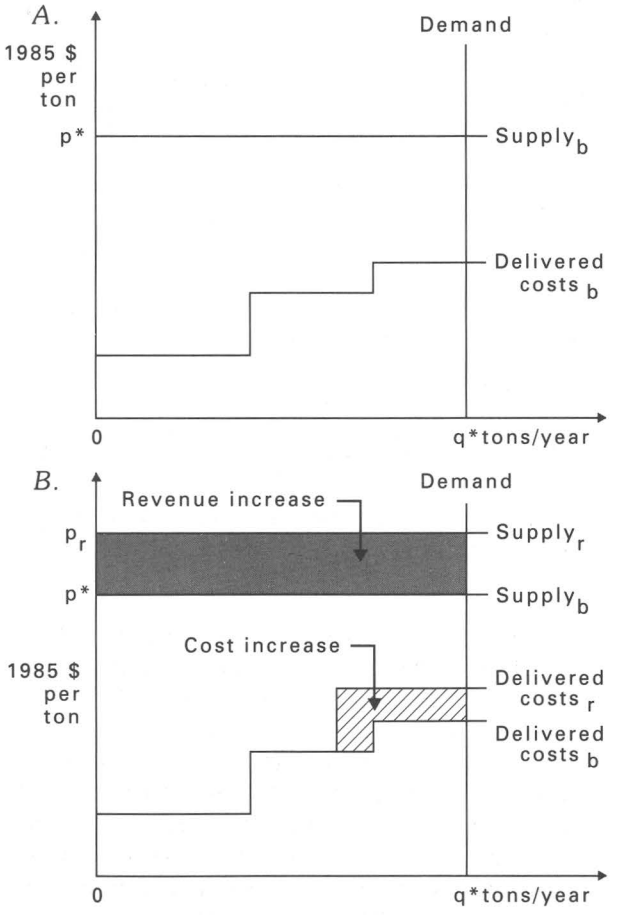

Figure 12. Revenue and cost increases at market equilibrium after implementing land-use restrictions.

of providing a tradeoff schedule to show economic gains for removing land-use restrictions at different dates. Such a schedule—a coal development benefits function—was discussed earlier, with the conceptual framework material. An empirical estimate of the coal development benefits function, determined by applying DCAM to the four pairs of land-use restriction cases that involve eliminating unsuitability criteria land-use restrictions at different points in time (bottom four sets of cases in fig. 10), exemplifies this.

For each specific year (1985, 2000, 2010, 2020) when unsuitability criteria restrictions are assumed lifted, coal delivery cost savings are projected for 45 years beyond the decision year. Lands that are otherwise restricted by applying the unsuitability criteria are available for coal development in this time period.[13] Land-use restrictions under the multiple use and surface owner consent screens are assumed to remain in force.

Table 5. Coal production shifts, restricted versus base case

[Excludes shifts of less than 50 million tons. Reduction in tonnage is larger than increase in tonnage because coal Btu content in regions where production increases is less than coal Btu content in regions where production falls.]

Supply regions	Change in tons of coal mined, 1985–2030, in millions of cumulative tons (negative values in parentheses)
Supply regions with production increases	
Eastern United States	
3 Birmingham, Ala.	214
10 Middlesboro, Ky.	80
16 Pittsburgh, Pa.	85
19 State College, Pa.	240
21 Charleston, W. Va.	263
26 Peoria, Ill.	130
30 Tuscola, Ill.	202
32 Sullivan, Ind.	164
Total	1,378
Texas	
40 San Antonio, Tex.	163
Colorado and New Mexico	
61 Raton, N. Mex.	177
62 Gunnison, Colo.	362
90 San Juan County, N. Mex.	77
93 Moffat and Routt Counties, Colo.	355
Total	971
Northern Great Plains	
66 Rawlins, Wyo.	108
67 Sheridan and Johnson Counties, Wyo.	125
95 Powder River basin, Mont.	879
Total	1,112
Grand Total	3,624
Supply regions with production decreases	
Northern Great Plains	
80 Minot, N. Dak.	(88)
92 Carbon County, Wyo.	(292)
96 Powder River basin, Wyo.	(3,600)
98 Fort Union, N. Dak.	(519)
Total	(4,499)

This analysis provides the development benefits function shown in figure 15. DCAM's estimates of cost savings follow an exponential path so that the empirical function has the same form as the conceptual function presented earlier as equation 1. The baseline or comparison case is the restricted case (all BLM land restrictions in place). When

[13] A 45-year planning horizon allows for the normal development of a coal mine, including at least a 5-year design period followed by mining operations for 30 or more years. Coal mining, especially surface mining, is a large-scale and often capital-intensive undertaking. Commitments to open mines will be made only if there is adequate time for investments to reach fruition.

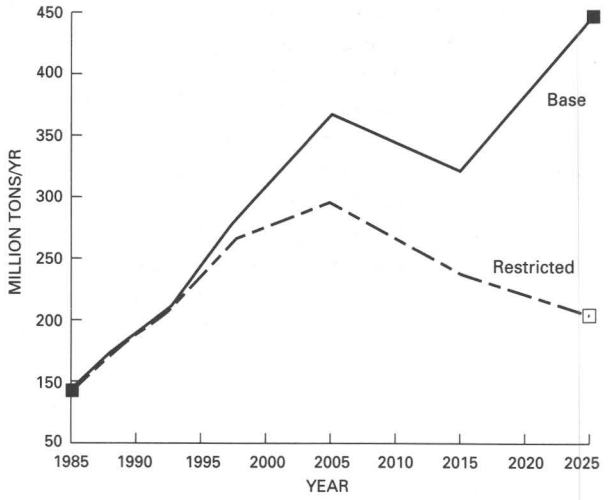

Figure 13. Wyoming coal production, restricted versus base case.

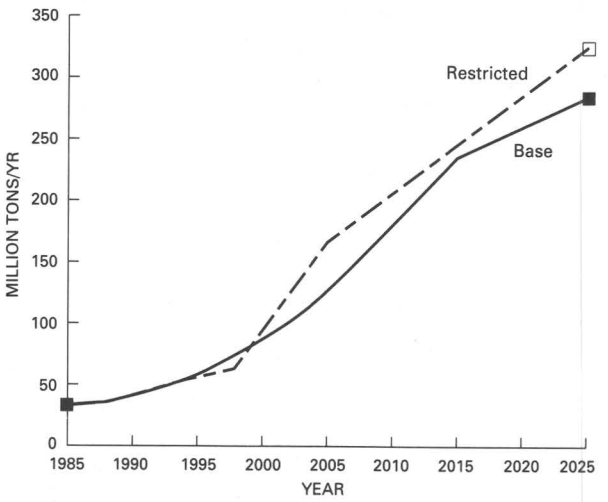

Figure 14. Montana coal production, restricted versus base case.

the unsuitability criteria restrictions are lifted, an additional 14 billion tons of coal are available for development. Much of this coal is located in the Powder River basins of Wyoming and Montana (compare the middle and final columns in table 3). The coal has low mining cost and low sulfur content. Developing it reduces national coal delivery costs. Development benefits are estimated to be $1.1 billion (1985 dollars) if unsuitability criteria restrictions are lifted in 1985. Development benefits increase if the decision to lift the unsuitability criteria restrictions is delayed. Over time, coal demands are increasing and the coal resource base is being mined out in order of increasing cost. Thus, low-cost coal that the unsuitability criteria restrictions preserve could become increasingly attractive to the market.

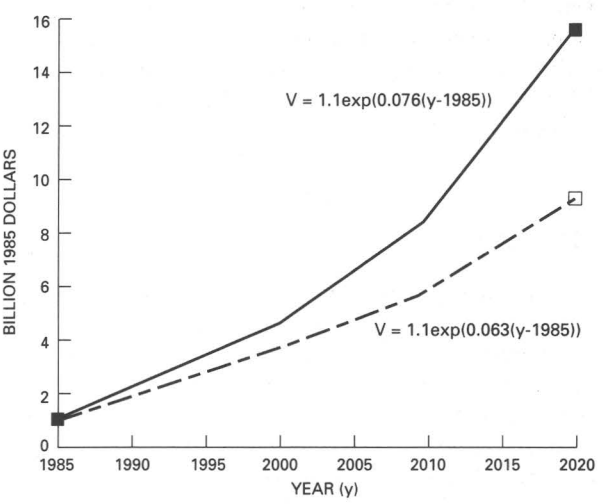

Figure 15. National cost savings (coal development benefits)—Schedules labeled as V's—from lifting restrictions imposed under unsuitability criteria (note: the lower schedule assumes productivity sufficient to keep average national coal mining costs constant; in this case coal development benefits grow at 6.3 percent per year).

Consequently, as figure 15 indicates, development benefits from lifting the unsuitability criteria restrictions increase at a rate of 7.6 percent per year and reach nearly $16 billion by the year 2020.

The $1.1 billion estimate of the development benefits (unsuitability criteria restrictions lifted for 45 years starting in 1985) and the 7.6 percent estimate of the development benefits' annual growth rate are derived from the DCAM estimates for 1985 ($1.1 billion), 2000 ($4.7 billion), 2010 ($8.6 billion), and 2020 ($15.8 billion). The initial cost savings and growth rate are the values needed to determine the empirical coal development benefit functions as shown in figure 15.

As the conceptual framework discussion indicated, it is difficult to determine when it might be economically beneficial to extend or relax land-use restrictions, such as the unsuitability criteria restrictions. Reliable methods to estimate a preservation benefits function in dollar values are still being developed. Furthermore, uncertainty about the direction of change and magnitude of coal development and preservation benefits makes comparing preservation and development benefits difficult.

However, an analysis can specify a set of physical targets for environmental assets and determine the regional allocation of land-use restrictions so that environmental assets are protected at the lowest national coal delivery costs. Appendix A demonstrates such an approach using DCAM. The approach's objective would be to achieve a targeted level of environmental preservation by selecting a set of areas and appropriate levels of restriction by area that add minimally to national coal delivery costs (compared to a case with no restrictions) while meeting national coal

demands. The approach is based on setting regional or national targets, as agreed on in a political process, for environmental preservation. Once the targets are established, a cost-effective allocation of land-use restrictions can be estimated.

CONCLUSIONS

The opportunity costs of a long-term land-use policy decision have been estimated using DCAM, a dynamic linear program. The analysis illustrates how DCAM can establish a "first-cut" estimate of what it will cost the Nation to implement BLM land-use restrictions in selected Federal regions. The restrictions' incremental cost for 45 years is about $3 billion (in 1985 dollars) in present value terms or approximately 0.5 percent of the total market cost for the period. Lands restricted for environmental reasons (unsuitability criteria, 43 CFR 3461.1) have about a $1 billion incremental cost in present value terms or approximately 0.15 percent of the total market cost for the period. The incremental costs, in present value terms, of the unsuitability criteria land-use restrictions for 45 years could be as high as $4.7 billion in 2000 and $15.8 billion in 2020. The study also proposes a method to evaluate the cost effectiveness of extending or removing individual unsuitability criteria in specific locations.

For the economic evaluation of long-term issues related to coal development to be helpful in public policy making, analyses should contain the following elements:

- Coal supply. Bed-specific coal quality and quantity information is needed. Aggregating these types of data to any political boundary (for example, county or regional level) will aid the examination of the availability of specific coals for different uses.
- Coal distribution. The analytical framework in which DCAM operates is designed to examine coal allocations and the impacts of resource depletion over time. DCAM combines two coal geographic information systems (the National Coal Resources Data System and the U.S. Department of Energy's Demonstrated Reserve Base) with economic information about producing, transporting, and using coal to determine an optimal allocation of resources for 45 years. Transactions in the coal market unfold over many years, so a study of market participants should represent the participants' behavior in accordance with real-world, dynamic market processes.
- Coal utilization. Forecasts of coal consumption by location and type of use will influence when specific coals are extracted. This analysis projected sub-State coal demands based on mid-level National Energy Plan and Argonne National Lab projections, including a forecast for synthetic fuel demand. Alternative demand levels and coal utilization mixes could affect the market in different parts of the country differently.

Although this effort concentrated on a detailed level of the coal market, transactions take place among market participants as individual purchases or contracts for a particular coal. Interactions among individual market participants are beyond DCAM's detail. Refining data to simulate actual market activities over time was not this study's purpose. Instead, the interest of this analysis has been to simulate the U.S. coal market's dynamic behavior and to examine how specific policies and the consequent regional shifts in coal production over time affect the Nation. In this regard, DCAM's detail and structure are useful for policy evaluation.

REFERENCES

Brookshire, David S., Eubanks, Larry S., and Randall, Alan, 1983, Estimating option prices and existence values for wildlife resources: Land Economics, v. 59, no. 1, p. 1–15.

ICF, Inc., 1980, Coal and electric utilities model documentation: Washington, D.C., ICF, Inc., 271 p.

Nelson, Robert H., 1983, The making of Federal coal policy: Durham, N.C., Duke University Press, 261 p.

Office of the Federal Register, 1986, Public lands: interior, 43 CFR 1000–3999: Washington, D.C., U.S. Government Printing Office (revised October 1), 904 p.

Porter, Richard C., 1982, The new approach to wilderness preservation through benefit-cost analysis: Journal of Environmental Economics and Management, v. 9, no. 1, p. 59–80.

———1984, The optimal timing of an exhaustible, reversible wilderness development project: Land Economics, v. 60, no. 3, p. 247–254.

Trent, Virgil A., 1986, Estimated resources of non-leased Federal coal, Powder River basin, Montana and Wyoming: Reston, Va., U.S. Geological Survey, Miscellaneous Field Study 1887, 21 p.

U.S. Department of Energy, 1982a, Energy Information Administration, Eastern coal reserves: Washington, D.C., U.S. Government Printing Office, 371 p.

———1982b, Energy Information Administration, Western coal reserves, part 1: Washington, D.C., U.S. Government Printing Office, 347 p.

———1982c, Energy Information Administration, Western coal reserves, part 2: Washington, D.C., U.S. Government Printing Office, 347 p.

———1984, Energy Information Administration, National coal model (version 5): Washington, D.C., U.S. Government Printing Office, 90 p.

———1986, Energy Information Administration, Coal production 1985: Washington, D.C., U.S. Government Printing Office, table A3, p. 97.

———1988, Energy Information Administration, Coal distribution January-September 1987: Washington, D.C., U.S. Government Printing Office, 97 p.

U.S. Department of the Interior, 1984a, Bureau of Land Management, Buffalo Resource Management Plan: Casper, Wyo., Bureau of Land Management, v. I, 343 p.

———1984b, Bureau of Land Management, Powder River resource area Resource Management Plan: Billings, Mont., Bureau of Land Management, 387 p.
———1986, Bureau of Land Management, North Dakota draft Resource Management Plan and environmental impact statement: Dickinson, N.D., Bureau of Land Management, 173 p.
———1987, Minerals Management Service, Mineral reserves: the report on receipts from Federal and Indian leases: Washington, D.C., U.S. Government Printing Office, 101 p.
Walsh, Richard G., Loomis, John B., and Gillman, Richard S., 1984, Valuing option, existence, and bequest demands for wilderness: Land Economics, v. 60, no. 1, p. 14–29.

APPENDIXES

INTRODUCTION TO APPENDIXES

The Dynamic Coal Allocation Model (DCAM) is the principal computerized model used in this analysis. DCAM projects, over a specified planning horizon, regional coal production, coal prices, coal costs, coal rents, and pollution residuals based on exogenously specified sets of coal demand, environmental policy, and resource policy assumptions. Structurally, the system consists of a number of special-purpose modules linked to an intertemporal, interregional model of the U.S. coal market. Earlier models developed by the U.S. Department of Energy (1984), ICF, Inc. (1980), Modiano and Shapiro (1980), Bohi and Toman (1984), and Bernknopf (1985) have focused on coal markets' intertemporal or interregional nature but no attention was given directly to the simultaneous time and space relationships for a depletable, increasing-cost resource.

Figure IN1 presents an overview of DCAM. Each module in figure IN1 is an integral piece of DCAM. The modules in the upper half of the diagram represent the procedures used to determine coal supply:

- Minable Coal Resource Base—Estimates the minable tonnage of underground and surface coal by sulfur and Btu content for each DCAM coal supply region.
- BLM Land-Use Restrictions—Determines which geographic areas are accessible for coal mining after the Bureau of Land Management (BLM) has applied its land-use planning screens. Defines alternative land-use restriction cases for DCAM to analyze.
- Coal Mining Costs—Estimates free on board (fob) coal mining costs as a function of coal geology, type of mining, mine size, regional factor input prices, and regional taxes. Builds step functions for each coal supply region showing amount of fob coal tonnage available at incremental steps in mining cost (1985 dollars per ton); also provides Btu content and final sulfur level for each tonnage-cost category.
- Coal SO_x Removal and Scrubbing Costs—Determines SO_x scrubbing costs based on sulfur content and scrubber SO_x removal efficiency.
- Coal Transportation Costs—Determines costs for rail and barge transportation and electric transmission. Rail

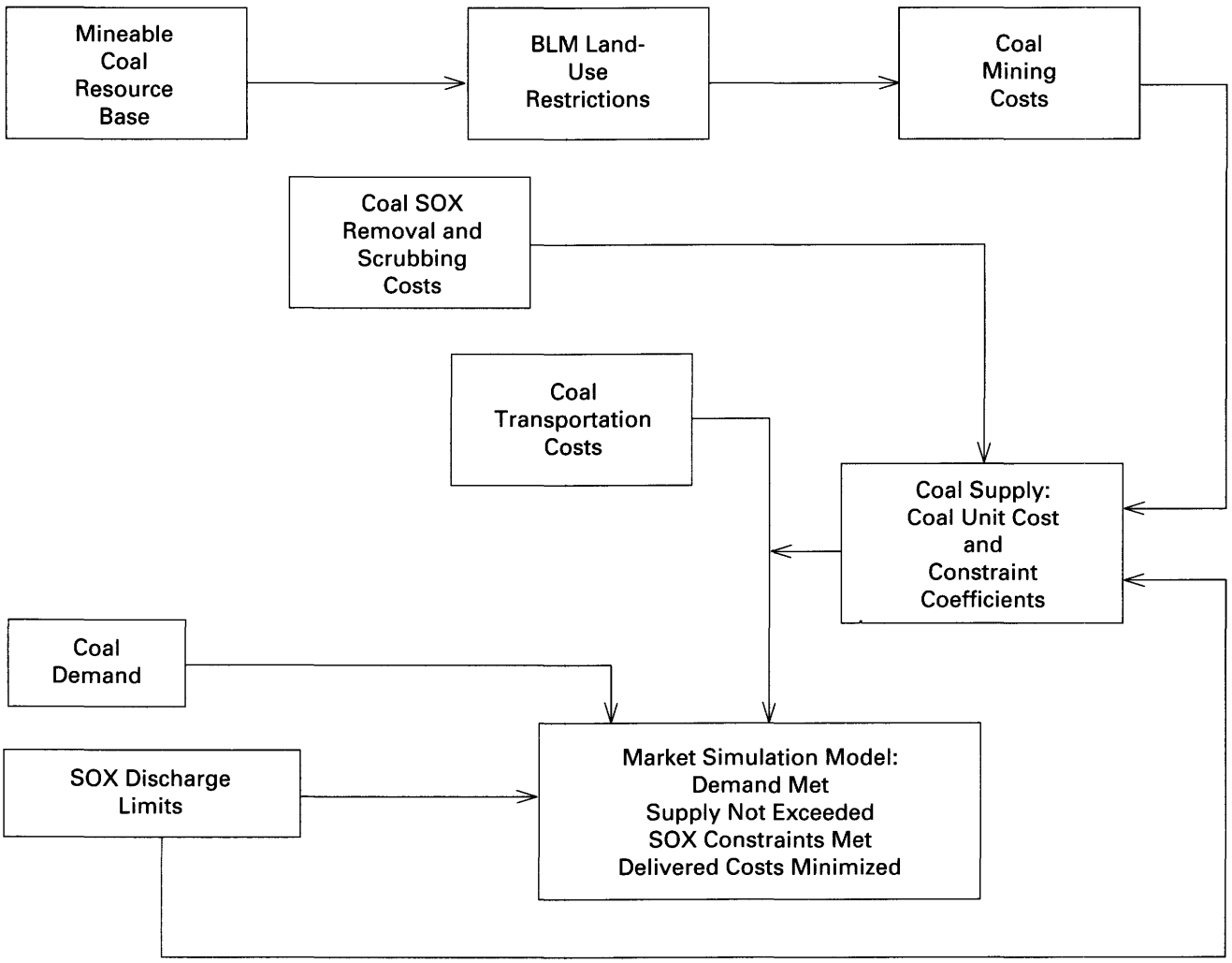

Figure IN1. Dynamic Coal Allocation Model.

costs depend on mode (unit train or mixed freight), tonnage, and miles, plus other factors. Barge costs depend on loading and unloading costs, tonnage, transit delays, and distance. Electric transmission costs are determined using mileage and engineering relationships.

- Coal Supply—Provides the array of coefficients to represent coal supply possibilities, including coefficients for mining costs, transport rates, and SO_x scrubbing costs, as well as coefficients for constraints related to coal supply, SO_x discharges, and transport capacities.

Modules determining coal demand and demand-side SO_x discharge limits are represented in the lower left side of figure IN1:

- SO_x Discharge Limits—Estimates demand-side limits on SO_x discharges. This analysis used limits established by the Federal Clean Air Act for SO_x and includes State Implementation Plans (SIP) limits, Federal new source performance standards (NSPS), and Federal revised new source performance standards (RNSPS).
- Coal Demand—Determines regional coal demands. Coal demand projections are taken from recent U.S. Department of Energy projections, except for demands in existing coal utility boilers subject to SIP SO_x standards and synfuel plant demands. The SIP demands are developed using coal utilization in 1985 and projections of SIP boiler capacities. Projections of synfuel plant demands for coal are based on data and projections from recent studies.

The respective supply and demand modules (shown in the lower right side of fig. IN1) provide all the data DCAM's Market Simulation Model (MSM) needs. The MSM simulates a market balance by determining the set of coal shipments, from supply regions to demand regions over 45 years, which minimize the sum of coal mining, transportation, and scrubbing costs (in present value terms) while meeting coal demand targets and staying within available supplies of coal, environmental quality limits, and transportation capacities.

The appendixes describe the major functions each DCAM module performed. Detailed descriptions are given for the Market Simulation Model (A), Minable Coal Resource Base Module (B), BLM Land-Use Restrictions (C), Coal Mining Costs Module (D), Coal SO_x Removal and Scrubbing Costs Module (E), Coal Transportation Costs Module (F), Coal Supply Module (G), SO_x Discharge Limits Module (H), and Coal Demand Module (I).

The appendixes discuss the major data sets the MSM used and present them in a series of tables. Because many of the data tables are long, they have been placed separately, following Appendix I. Figures are integrated with the appendix text.

This study's data sets and computer programs are available on computer tape. This package of materials includes guidelines on programming procedures and on the linkages among programming inputs and outputs. It also contains the set of running instructions (job control language) required to prepare all the data inputs and to execute the MSM. These materials are available from the U.S. Geological Survey.

References

Bernknopf, Richard L., 1985, Domestic coal distribution: an interregional programming model for the U.S. coal industry: Greenwich, Conn., JAI Press, 230 p.

Bohi, Douglas R., and Toman, Michael A., 1984, Analyzing nonrenewable resource supply: Washington, D.C., Resources for the Future, Inc., 159 p.

ICF, Inc., 1980, Coal and electric utilities model documentation: Washington, D.C., ICF, Inc., 271 p.

Modiano, Eduardo M., and Shapiro, Jeremy F., 1980, A dynamic optimization model of depletable resources: The Bell Journal of Economics, v. 11, no. 1, p. 212–236.

U.S. Department of Energy, 1984, Energy Information Administration, National coal model (version 5): Washington, D.C., U.S. Government Printing Office, 90 p.

APPENDIX A—MARKET SIMULATION MODEL

The Market Simulation Model (MSM) is the Dynamic Coal Allocation Model's (DCAM) most important analytic component. The MSM integrates supply schedules, demands, transportation capacity constraints, and sulfur dioxide (SO_x) discharge limits to determine regional coal production patterns that minimize the present value of extraction, transportation, and SO_x removal costs while meeting projected national coal demands and operating within allowable sulfur emission standards, available supplies of minable coal, and shipping capacities (locks and transmission lines).

The MSM is a piecewise dynamic linear programming model that simulates market behavior over time for an exhaustible resource with increasing costs. In applying the model to the national coal market, coal resource rents in the form of locational, quality, and scarcity rents are determined endogenously. These rents provide the necessary market signals for efficient intertemporal and interregional allocation of the Nation's coal. In addition to regional coal output and rents, the MSM projects regional coal prices, costs, and depletion and SO_x discharges.

The MSM analyzes coal allocation as a dynamic market clearing process. Economic rents associated with the depletion of heterogeneous coals are the market values that link the coal allocation patterns across time. Delivered price for any particular coal is equal to full marginal cost at the destination market, which includes conventional marginal costs (for extracting, transporting, and scrubbing coal) plus certain static and dynamic marginal opportunity costs (MOC's). Static MOC's are society's costs to use the limited capacity of the Earth's atmosphere to assimilate coal emissions (SO_x discharge limits) and limited transportation capacity for river locks and transmission lines. Dynamic MOC's are the discounted values of society's future increased costs (coal extraction, transportation, and scrubbing) that result when a particular cost coal is extracted in the current time period and is unavailable to the market later. Because the prices the MSM calculates include all current and future opportunity costs and because the coal delivered (in the solution) has the lowest marginal opportunity costs, the MSM's coal allocation is at a minimum cost in present value terms.

Over the time period of this analysis, the coal is not depleted physically.[1] Because depletion does not occur, the MSM does not make the transition to a backstop technology.[2] In simple models of exhaustible resource markets, it is often assumed that extraction costs are constant and physical exhaustion occurs. In models of this kind, dynamic linkage is achieved by a scarcity rent for a homogeneous commodity rising at the rate of interest (the "*r* percent rule" first presented by Hotelling (1931)). The conditions of that simple case do not fit the MSM. Instead, MSM contains a highly heterogeneous array of coal supply possibilities distinguished by different locations, mining costs, SO_x scrubbing costs, transportation costs, tonnage, and Btu and sulfur contents. The rents that occur in this situation are dynamic Ricardian rents.[3] They are the present value of future additional costs due to current extraction. The transition in the MSM, over time, is to higher costing coal resources, not to physical exhaustion or to a backstop technology.

In the MSM, different dynamic Ricardian rents occur for every potential shipment possibility. These rents are part of the marginal opportunity cost the MSM uses to set prices and, hence, to determine an efficient coal allocation. After the mathematical formulations are presented below, an example from the base case solution (which has no restrictions on coal access) will illustrate these relationships.

The MSM is presented first in terms of the complete set of subscripts necessary for all supply and demand details. Following this, a streamlined version of the model (supply and demand subscripts are deleted) is given. The streamlined model retains all of the general formulation's key economic properties while allowing for easier exposition of the role of rents and price conditions in the optimal solution.

A General Mathematical Model

Table A1 presents a general mathematical formulation of the MSM. Table A2 contains the legend for interpreting the model's indices and equations.

The MSM allocates U.S. coal over 45 years to minimize total mining, transportation, and scrubbing costs (in present value terms) while meeting projected coal demands and operating within allowable SO_x emission standards, available supplies of minable coal, and shipping capacities for river locks and transmission lines. The MSM assumes technological change in coal production by incorporating productivity improvements at a level that keeps aggregate national average mining costs constant (consistent with recent historic performance). The model, though, assumes no technological change in distributing or using

[1]The deliverable coal resource base for the United States is estimated to be 346 billion tons (see table D2) whereas cumulative coal demands in 1985 to 2065 are estimated to be 156 billion tons.

[2]A backstop technology is an alternative form of energy supply that could provide large quantities of energy at a price above current prices, for example, fusion reactors for generating electric energy (Nordhaus, 1979).

[3]The role of dynamic Ricardian rents in exhaustible resources models is discussed in Toman (1986) and Hartwick (1982). The concept of rent as an extra payment to a specialized or unique economic input (such as rent earned by low-sulfur coal) is attributed to the 18th-century economist, David Ricardo.

coal. However, in the out years, the model does include synthetic fuel production from coal. The MSM has these main structural features:

- 60 coal supply regions, each represented by a step function of up to 12 steps relating minable tonnage to mining cost by sulfur and Btu content,
- 243 coal consuming markets that represent Environmental Protection Agency (EPA) regional air sheds (AQCR's—air quality control regions), each having one or more of 8 possible types of coal demand, including electric utility and industrial boiler demands, export demands, metallurgic demands, and synfuel demands,
- 5 modes of coal transportation: mixed freight rail or unit train, waterway, intermodal transshipments between water and rail, or electric transmission lines (mine mouth power plants generate electricity that is shipped as tonnage equivalents over high-voltage transmission lines), and
- 6 planning periods spanning 45 years.

The model runs for the base case and a restricted case (which has restricted access to Western Federal coal—see Appendix C), starts in 1985, and covers six time periods: 1986–1990, 1991–1995, 1996–2000, 2001–2010, 2011–2020, and 2021–2030. The first three periods are 5-year increments while the last three are 10-year increments. Consequently, constraint limits with time subscripts, such as demands, SO_x limits, and transmission and lock capacities, are total quantities for each period. That is, SD_{ijt}, D_{jkt}, βD_{jkt}, L_w, and E_{it} are cumulative 5-year totals for the first three time periods and cumulative 10-year totals for the last three time periods. Likewise, the optimal shipment tonnages (x_{mijklt} and y_{mijlt}) are cumulative quantities by period. For reporting purposes, however, outputs and inputs are presented as average-per-year quantities at the midpoints of the time intervals (1988, 1993, 1998, 2005, 2015, and 2025). The midpoints are used also for calculating discounted costs.

Federal and State regulations, which govern sulfur dioxide discharges to the atmosphere, are important determinants of coal allocation. The MSM models these regulations directly. For example, MSM coal demand regions are the AQCR's established by the EPA. This allows SO_x regulations, which are to be met in AQCR's, to be tied directly to appropriate classes of coal utilization. Coal utilization, by SO_x regulation, falls into three categories: (1) coal utilization under State Implementation Plans (SIP's), (2) coal utilization under Federal new source performance standards (NSPS), and (3) coal utilization under Federal revised new source performance standards (RNSPS). The MSM has certain requirements for each category. SIP coals must have sulfur contents within allowable State standards. SO_x discharges from NSPS coal cannot be larger than the Federal discharge limit. RNSPS coal must be scrubbed according to Federal regulations. These MSM requirements are included in the mathematical model presented in this appendix. Additional details on implementing the SO_x regulations in the MSM and in DCAM are presented in appendix H, SO_x Discharge Limits module, and in Appendix I, Coal Demand module.

In the MSM, any supply region (x_{sijklt}) can originate coal shipments to meet NSPS, RNSPS, metallurgic, export, and synfuel coal demands, as long as constraints are not violated. In contrast, shipments to meet SIP demands (y_{sijlt}) have fixed supply origins and demand destinations (see Appendix H). In the SIP case, the model chooses different coal supply steps (for the fixed origin) and different transport modes (for the fixed origin and destination) to minimize costs.

The following summaries of MSM's objective function and constraints on the solution are keyed (by heading) to the MSM's mathematical representation in table A1.[4]

Objective Function

The MSM selects (1) tonnages (x_{sijklt}) that minimize the discounted sum of mining, transportation, and scrubbing costs for shipments to meet NSPS, RNSPS, export, metallurgic, and synfuel demands and (2) tonnages (y_{sijlt}) that minimize the discounted sum of mining and transportation costs for shipments to meet SIP demands.

Constraints

SIP Demand: The total tons shipped from fixed supply origins, added across coal supply steps and transport modes, must equal SIP demands at fixed demand destinations.

Other Demand: Shipments in tons of coal containing 24 million Btu per ton must be greater than or equal to demand.

SO_x Discharge NSPS Demands: Tons of sulfur discharged when NSPS shipments are combusted cannot exceed tons allowed under NSPS regulations at the demand center.

SIP Limits: SIP coal must have a sulfur content (in terms of pounds of SO_x per million Btu) that is not greater than the SIP limit.

Supply: Supply constraints allow for the normal development of a coal field over a 15- to 20-year period. They recognize that coal is usually blocked-up and mined out in a steady progression over 20 years. The supply constraints are set up in the following manner: The sum of all shipments in the first 5 years from a coal supply step in region *i* cannot exceed one-third of the available deliverable tonnage at that step; the sum of all shipments in the first 10 years cannot exceed two-thirds of the available deliverable

[4]Subsequent appendices present the data sets and additional details on the procedures used to estimate the data inputs the MSM needs.

tonnage. After 15 years, the sum of all shipments cannot exceed total deliverable supply at a specific coal supply step.

River Locks: The sum of coal shipped on barges in any given time period cannot exceed river lock capacities.

Electric Transmission: Electric transmission shipments are limited to transmission line capacity.

Unit Trains: Unit train shipments must equal or exceed 500,000 tons per year.

Coal Quality, Export, and Metallurgic Shipments: Coal shipped to export and metallurgic markets must meet quality constraints for sulfur and Btu contents.

Non-Negative Shipments: Negative shipments of coal are not allowed.

To solve the MSM, the number of coal supply possibilities available as candidates for entry into the solution procedures must be reduced. Six variable indexes—s, i, j, k, l, and t—and upper limits on these indexes—S, I, J, K, L, and T—determine the total number of coal shipment candidates (see tables A1 and A2). With no special limits imposed, approximately 10 million coal shipments are available to enter the dynamic linear programming calculations. If all of these shipment possibilities were implemented, the MSM would be insoluble. To have a reasonable MSM matrix size, the following adjustments were made:

1. The number of coal supply steps (as indexed by s), which account for coal supply tonnage available at different mining costs and sulfur contents by supply region, was reduced from an average of 30 steps to an average of 8 steps per supply region (see Appendix B for details).
2. More than 27,000 coal transportation rates from supply regions to demand destinations were reduced to approximately 5,300 (see Appendix F for details).

After these adjustments were made, the MSM had about 450,000 coal shipment candidates to consider.

The MSM had more than 6,000 inequalities or constraints to meet in the solution. An IBM software package, the Mathematical Programming System Extended (IBM Inc., 1978 and 1979), was used to solve the MSM. As explained above, about 450,000 coal supply candidate activities were available.

A Streamlined Model

The study used a streamlined MSM to develop the model optimality conditions and to explore the role of future opportunity costs in the optimal solution. Optimality conditions are derived using the Kuhn-Tucker mathematical theorems for optimization (see Chiang, 1984, p. 722–753). To apply Kuhn-Tucker conditions, twice differentiable functions are assumed for extraction, transportation, and scrubbing costs. All subscripts except t are suppressed to keep derivations simple.

Extraction, transportation, and scrubbing costs are positive functions of current and cumulative extraction. In an historic context, coal extraction from a nonrenewable base has progressed from the lowest costing resources to higher costing resources. Consequently, current mining costs are higher due to the past cumulative reduction in the coal resource base. Likewise, because low-sulfur coal has already been extracted, the current cost of meeting SO_x discharge limits can be higher. History also affects transportation costs; fewer supply location alternatives raise transportation costs when coal is obtained from more remote supply regions.

Extraction costs can increase as a region's production increases because, at some level of production, coal can be obtained only from resources available at a higher mining cost. As lock and transmission line capacities are reached when regional production increases, transportation rates from a specific supply region increase. Similarly, increased levels of regional coal production can require extracting higher sulfur coal, resulting in higher SO_x scrubbing costs.

In mathematical terms, mining, transportation, and SO_x scrubbing costs are a function of the current level of coal production (x_t) and the cumulative amount of past coal production (z_t), or

Regional mining costs $= e_t(x_t, z_t)$,
Regional transportation costs $= n_t(x_t, z_t)$, and
Regional SO_x scrubbing costs $= b_t(x_t, z_t)$

where $z_t = \sum_{q=1}^{t-1} x_q$

As the discussion above indicates, the first-order partial derivatives of each of the cost functions with respect to x_t and z_t are positive: $\partial e_t/\partial x_t > 0$, $\partial e_t/\partial z_t > 0$, $\partial n_t/\partial x_t > 0$, $\partial n_t/\partial z_t > 0$, $\partial b_t/\partial x_t > 0$, and $\partial b_t/\partial z_t > 0$.

The following objective function (eq. A1) and constraint inequalities (expressions A2 through A5) represent the streamlined programming model:

$$\min_{x_t} K = \sum_{t=1}^{T} \left(\frac{1}{1+r}\right)^{t-1} \left[e_t(x_t, z_t) + n_t(x_t, z_t) + b_t(x_t, z_t) \right] \quad \text{(A1)}$$

subject to

$$\alpha x_t \geq D_t \qquad (P_t) \qquad \text{(A2)}$$

$$\beta x_t \leq 0.0072 D_t \qquad (B_t) \qquad \text{(A3)}$$

$$x_t \leq L \qquad (C_t) \qquad \text{(A4)}$$

$$x_t \leq E_t \qquad (M_t) \qquad \text{(A5)}$$

$$x_t \geq 0$$

where

K = total cost (in present value terms) of extracting, transporting, and scrubbing coal over the planning horizon
r = rate of discount
T = final year in the planning horizon
e_t = cost of extraction in time t ($/ton)

x_t = tons of coal extracted in a time period t

z_t = cumulative extraction up to t

n_t = cost of transportation in time t ($/ton)

b_t = cost of scrubbing coal at a market in time t ($/ton)

α = factor for converting coal in actual tons to coal in normal tons, in terms of Btu ((Btu/ton)$_t$/ 24,000,000)

D_t = coal demand at each destination in normal tons (tons containing 24,000,000 Btu/ton)

β = fraction of sulfur content in the coal by weight at the coal origin adjusted for sulfur removal by scrubbing

0.0072 = EPA regulation (NSPS) for sulfur discharges at a consumption market (tons of sulfur per normal ton of coal)

L = capacity in tons at a waterway lock

E_t = electric transmission line capacity (tons of coal equivalent).

The constraints (inequalities A2–A5) and their dual variables or shadow values (symbols in parentheses on the right side of the inequalities) have the following interpretations:

- Inequality A2. Coal shipments (transformed into Btu units by α) must be large enough to satisfy demand (in Btu units = D_t). P_t is the delivered price for a marginal ton of coal (dollars/ton at 24 million Btu per ton, in present value terms). If demand were relaxed (increased) by 1 ton (or 24 million Btu), P_t is the amount by which the objective function would decrease (increase). In other words, P_t is the market clearing price for a delivered ton of coal containing 24 million Btu per ton.
- Inequality A3. Tons of sulfur discharged cannot exceed SO_x limits in the demand region. The factor β converts coal to tons of sulfur; it equals the sulfur fraction (by weight) of coal adjusted by sulfur scrubbing removal percentage. The factor 0.0072 converts demand (in Btu terms) into tons of sulfur allowed under a Federal new source performance standard of 1.2 lb of SO_x per million Btu. B_t is the shadow value on sulfur discharges to the atmosphere (dollars/ton of sulfur, in present value terms). If the constraint on sulfur discharges were relaxed by 1 ton of sulfur, B_t is the amount of change in the objective function. B_t is like a market clearing price on sulfur discharges. If the atmosphere were owned and managed for waste disposal, B_t is the amount that could be charged for each ton of sulfur dumped. Since the atmosphere is not managed as a waste assimilating asset, B_t is a rent that can accrue to any market participant. Nonetheless, B_t is a marginal opportunity cost of limiting sulfur discharges to legal levels.
- Inequality A4. Tons of coal shipped cannot exceed river lock capacities L. C_t is the shadow value on limited lock capacity (dollars/ton of coal, in present value terms). If the lock capacity were to be increased by 1 ton of coal, then C_t is the amount by which the objective function would decrease. C_t is the amount a lock owner can charge on each ton of coal passing through a capacity-constrained lock. Since C_t reflects the cost of the next best alternative, it, like B_t, is a marginal opportunity cost.
- Inequality A5. Tons of coal shipped cannot exceed electric transmission capacities E_t. M_t is the shadow value on limited transmission capacity (dollars/ton of coal, in present value terms). It is the marginal opportunity cost of transmitting coal through a capacity-constrained transmission line.

To develop necessary conditions for an optimal solution, the constraint inequalities are multiplied by their associated dual variables and added to (or, as appropriate, subtracted from) the objective function to obtain the following Lagrangian expression:

$$\min Z = K + \sum_{t=1}^{T} \left[-P_t(\alpha x_t - D_t) + B_t(\beta x_t - 0.0072 D_t) + C_t(x_t - L) + M_t(x_t - E_t) \right] \quad \text{(A6)}$$

with respect to

$x_1, \ldots, x_t, \ldots, x_T$

$P_1, \ldots, P_t, \ldots, P_T$

$B_1, \ldots, B_t, \ldots, B_T$

$C_1, \ldots, C_t, \ldots, C_T$

$M_1, \ldots, M_t, \ldots, M_T$

Applying the Kuhn-Tucker theorem to A6 gives the necessary conditions for a minimum cost solution. The first step is to take partial derivatives with respect to each x. The expression that results involves a trailing sum which is a dynamic Ricardian rent. The steps leading to this result can be seen by expanding K (eq. A1) for time periods 1 through 3, taking the partial derivative with respect to x_1 in this expression and in the remaining terms in Z, then writing the corresponding general result.

The three-period expansion of K is

$$K = e_1(x_1) + n_1(x_1) + b_1(x_1) + (1/1+r) \cdot [e_2(x_2; x_1) + n_2(x_2; x_1) + b_2(x_2; x_1)] + (1/1+r)^2 \cdot [e_3(x_3; x_1+x_2) + n_3(x_3; x_1+x_2) + b_3(x_3; x_1+x_2)] \quad \text{(A7)}$$

where

$z_2 = x_1$ and

$z_3 = x_1 + x_2$.

Substituting A7 into A6 and taking the partial derivative with respect to x_1 gives:

$$\frac{\partial Z}{\partial x_1} = -\alpha P_1 + \beta B_1 + C_1 + M_1 + \frac{\partial e_1}{\partial x_1} + \frac{\partial n_1}{\partial x_1} + \frac{\partial b_1}{\partial x_1} + \left(\frac{1}{1+r}\right) \cdot \left[\frac{\partial e_2}{\partial z_2}\frac{\partial z_2}{\partial x_1} + \frac{\partial n_2}{\partial z_2}\frac{\partial z_2}{\partial x_1} + \frac{\partial b_2}{\partial z_2}\frac{\partial z_2}{\partial x_1} \right] + \left(\frac{1}{1+r}\right)^2 \cdot \left[\frac{\partial e_3}{\partial z_3}\frac{\partial z_3}{\partial x_1} + \frac{\partial n_3}{\partial z_3}\frac{\partial z_3}{\partial x_1} + \frac{\partial b_3}{\partial z_3}\frac{\partial z_3}{\partial x_1} \right] \geq 0 \quad \text{(A8)}$$

Upon collection of terms in A8

$$\frac{\partial Z}{\partial x_1}=-\alpha P_1+\beta B_1+C_1+M_1 \qquad \text{(A9)}$$
$$+\frac{\partial e_1}{\partial x_1}+\frac{\partial n_1}{\partial x_1}+\frac{\partial b_1}{\partial x_1}$$
$$+\sum_{q=2}^{3}\left(\frac{1}{1+r}\right)^{q-1}\cdot\left[\frac{\partial e_q}{\partial z_q}\frac{\partial z_q}{\partial x_1}+\frac{\partial n_q \partial z_q}{\partial z_q \partial x_1}+\frac{\partial b_q}{\partial z_q}\frac{\partial z_q}{\partial x_1}\right]\geq 0$$

The last term in expression A9 is the present value of future marginal extraction, transportation, and scrubbing costs that result from current extraction. It is the dynamic Ricardian rent associated with current extraction. This rent is a discounted value over all future time periods of higher future costs (mining, scrubbing, and transporting), resulting from a current decision to extract an additional ton of coal. The effect depletes economic, not physical, resources. Current extraction raises future costs, but future extraction remains a possibility.

The general necessary condition for an optimal or cost-minimizing solution, obtained as an extension of A9, is

$$\frac{\partial Z}{\partial x_t}=-\alpha P_t+\beta B_t+C_t+M_t \qquad \text{(A10)}$$
$$+\left(\frac{1}{1+r}\right)^{t-1}\cdot\left[\frac{\partial e_t}{\partial x_t}+\frac{\partial n_t}{\partial x_t}+\frac{\partial b_t}{\partial x_t}\right]$$
$$+\sum_{q=t+1}^{T}\left(\frac{1}{1+r}\right)^{q-1}\cdot\left[\frac{\partial e_q}{\partial z_q}\frac{\partial z_q}{\partial x_t}+\frac{\partial n_q}{\partial z_q}\frac{\partial z_q}{\partial x_t}+\frac{\partial b_q}{\partial z_q}\frac{\partial z_q}{\partial x_t}\right]\geq 0$$

For the solution to be optimal, it is also necessary that Kuhn-Tucker complementary slackness conditions be satisfied, as follows:

$$x_t(\partial Z/\partial x_t)=0$$

If $x_t>0$ then, by complementary slackness,

$$\partial Z/\partial x_t=0$$

or from A10

$$\alpha P_t(1+r)^{t-1}=\frac{\partial e_t}{\partial x_t}+\frac{\partial n_t}{\partial x_t}+\frac{\partial b_t}{\partial x_t} \qquad \text{(A11a)}$$

$$+(1+r)^{t-1}[\beta B_t+C_t+M_t] \qquad \text{(A11b)}$$

$$+\sum_{q=t+1}^{T}\left(\frac{1}{1+r}\right)^{q-t}\cdot\left[\frac{\partial e_q}{\partial z_q}\frac{\partial z_q}{\partial x_t}+\frac{\partial n_q}{\partial z_q}\frac{\partial z_q}{\partial x_t}+\frac{\partial b_q}{\partial z_q}\frac{\partial z_q}{\partial x_t}\right] \qquad \text{(A11c)}$$

The right side of expression A11a includes conventional marginal costs (the sum of marginal extraction, transportation, and scrubbing costs). Expression A11b is the sum of marginal opportunity costs associated with SO_x discharge limits, river lock capacities, and transmission line capacities. Expression A11c is the future marginal opportunity cost from current extraction of nonrenewable coal. The term $(1+r)^{t-1}$ in A11a and A11b moves the present price and shadow values forward from their discounted values in the initial period (time=1) to undiscounted values in the current period (time=t). The term α, dividing through on left and right sides, converts dollars per ton (by weight) for the right side values into dollars per ton of coal containing 24 million Btu per ton. The term $P_t(1+r)^{t-1}$ is market price in undiscounted dollars per ton of coal containing 24 million Btu per ton. Thus, equation A11 says that a shipment can be in the optimal solution if its full marginal costs (normalized for Btu) are equal to (or are just covered by) the delivered price consumers are willing to pay at the demand center. That price equals the shadow value on the demand constraint.

When delivered price does not cover full marginal cost (for all parts of the market transaction), the shipment will not be made since suppliers cannot cover all their costs. This logical outcome also is consistent with the Kuhn-Tucker complementary slackness condition. If $x_t=0$ then, by complementary slackness, $\partial Z/\partial x_t\geq 0$ or from A10, full marginal cost≥price.

The Kuhn-Tucker conditions also provide insight on cost competition among different supply regions potentially shipping to a given demand center. Full marginal costs (FMC in dollars per ton of coal containing 24 million Btu per ton) from two sources ($i = g$ and $i = h$) that could supply coal to demand region j, are shown as follows:

FMC_{gj} = marginal extraction cost$_g$
+ marginal transportation cost$_{gj}$
+ marginal scrubbing cost$_g$
+ shadow value on SO_x discharge$_{gj}$
+ shadow value on lock capacity$_{gj}$
+ shadow value on electric transmission$_g$
+ dynamic Ricardian rent$_g$

and

FMC_{hj} = marginal extraction cost$_h$
+ marginal transportation cost$_{hj}$
+ marginal scrubbing cost$_h$
+ shadow value on SO_x discharge$_{hj}$
+ shadow value on lock capacity$_{hj}$
+ shadow value on electric transmission$_h$
+ dynamic Ricardian rent$_h$

By the Kuhn-Tucker conditions, both coal supply regions g and h would supply demand region j if the price from each supply region covers full marginal delivered costs:

$$\text{Price}_j = FMC_{gj} = FMC_{hj}.$$

Figure A1 illustrates this fundamental principle of nonrenewable resource supply by an example drawn from the base case. The demand region is Evansville, Ind., AQCR 77. Delivered price for NSPS coal (shadow value on the demand constraint) is $60.77 per ton in 1985, rising to $69.75 per ton by 2000. Six regions supply coal to this market between 1985 and 2000. Every year, two regions supply coal: Powder River, Mont. (region 95), step 1; and

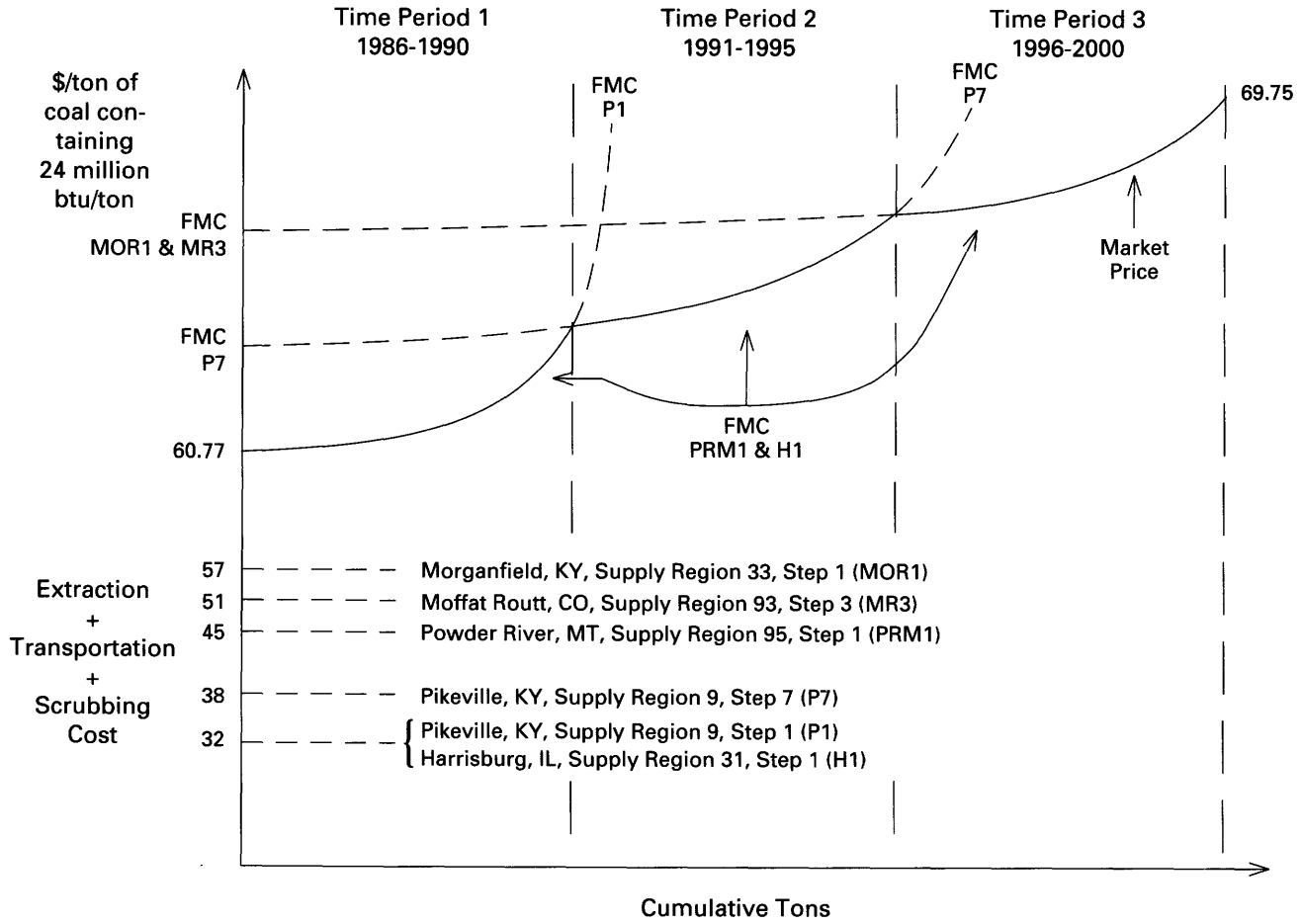

Figure A1. Optimal deliveries of coal to NSPS boilers, Evansville, Indiana, AQCR 77.

Harrisburg, Ill. (region 31), step 1. The price just covers FMC for these two regions. Mining, transporting, and scrubbing costs are $45 and $32 per ton in the respective regions. Neither of the coals is scrubbed. Consequently, the SO_x constraint requires relatively large payments for emissions into the air around Evansville.

Adding SO_x discharge shadow values, a river lock shadow value for the Powder River shipment, and dynamic Ricardian rents brings full marginal cost to equal a market price of $60.77 per ton in 1985. As time proceeds, static and dynamic rents for the two supply regions change so that equality is maintained between price and FMC and the two regions continue to supply Evansville.

Figure A1 also shows the FMC for coal potentially supplied from four other coal supply regions: Pikeville, Ky. (region 9), step 1; Pikeville, Ky. (region 9), step 7; Morganfield, Ky. (region 33), step 1; and Moffat & Routt Counties, Colo. (region 93), step 3. Pikeville (step 1) is cost competitive in the first time period, as shown by the coincidence of its FMC with delivered price; it enters the optimal solution. However, by time period 2, FMC for Pikeville (step 1) exceeds market price, and coal from this source is no longer shipped to Evansville. In time period 2, another region, Pikeville (step 7), becomes a supplier to Evansville as the Pikeville FMC comes into line with the Evansville market price. In time period 3, Pikeville (step 7) is no longer a supplier, but two other regions, Morganfield (step 1) and Moffat & Routt (step 3), become suppliers.

Complementary slackness from the Kuhn-Tucker theorem also requires that the optimal solution satisfy

$$P_t(\partial Z/\partial P_t) = 0$$
$$B_t(\partial Z/\partial B_t) = 0$$
$$C_t(\partial Z/\partial C_t) = 0$$
$$M_t(\partial Z/\partial M_t) = 0$$

If a constraint is binding (such as, $\beta x_t = 0.0072 D_t$), complementary slackness dictates that the corresponding dual variable, which acts as a shadow value or market price (such as B_t), be greater than or equal to zero. When non-zero, the dual variable will be set equal to the activity's MOC that just brings the constraint to equality.

The economic properties of the optimal MSM solution are summarized as follows:

- Static rents (associated with SO_x discharge limits, lock capacities, and transmission line capacities) and

dynamic Ricardian rents measure the MOC's that occur when a total cost-minimizing allocation of coal production, shipment, and scrubbing is achieved.

- Full marginal costs in the optimal solution equal marginal extraction, transportation, and scrubbing costs plus static rents and dynamic Ricardian rents.
- Coal is not physically exhausted in the optimal solution; rather, coal is used in order of increasing FMC. Full marginal cost includes dynamic Ricardian rents, which are the present value of future costs incurred as a result of current extraction. These dynamic Ricardian rents provide an economic linkage across time.
- The MSM calculates demand shadow values as a measure of the opportunity cost of meeting an additional ton of demand.
- The MSM calculates shadow values (marketlike prices) for all binding constraints in the optimal solution (SO_x discharge limits, lock and transmission capacities). The shadow values are a measure of marginal opportunity cost.
- A shipment from a supply region to a demand region can enter the optimal solution with a positive tonnage value only if that shipment's FMC equals the demand shadow value (price) at the demand region.
- All coal received at a demand region from different supply regions must have the same delivered cost in dollars per unit of Btu.

MSM Applications

The MSM has many applications. Among them, this report uses two examples to illustrate the MSM's utility in assessing long-term economic effects of public land-use planning. It is assumed that a given set of land-use restrictions on public coal lands would change the amount of coal resources available to meet demands. If the restricted coal resources are low cost, then the Nation's costs could increase when land-use restrictions are implemented.

Currently, MSM can estimate the Nation's opportunity cost from the U.S. Department of the Interior's (USDI) land-use restrictions. This MSM application is a form of positive analysis. The question is, what are the costs of a given set of land-use restrictions? The MSM can analyze with-restriction and without-restriction cases to provide a reasonable answer. Appendix C describes this analysis, the report's main subject.

An alternative MSM application concerns normative issues. The MSM can determine the allocation (by region and by amount) of land-use restrictions that minimize the costs of meeting some specified set of environmental protection targets. (The main report suggests this approach as a planning methodology for USDI to implement.) The remainder of this appendix details using the MSM to examine such cost-effective planning options.

At the most general level, cost-effective options can be determined by adding appropriate constraints to the MSM. Two examples will distinguish between "renewable" and "nonrenewable" natural assets.

Some wildlife, for example, sage grouse,[5] can be regarded as renewable. That is, when land is being surface mined, sage grouse habitat would be disrupted and the flow of environmental service values associated with sage grouse would decrease. Once mining ceases and reclamation is complete, the service flows could resume. Assume now that a target (GT_t) has been determined for sage grouse. An appropriate constraint for the MSM would be

$$G_0 - \mu x_t \geq GT_t \qquad \text{(A12a)}$$

$$\mu x_t \leq G_0 - GT_t \qquad \text{(A12b)}$$

where

G_0 = the current inventory of sage grouse habitat,

μ = a locality-specific factor for transforming mined coal tonnage into units of disturbed sage grouse habitat, and

GT_t = the lower bound constraint on undisturbed sage grouse habitat.

Constraint A12b says that coal mining operations would be allowed in specific localities as long as no more than $G_0 - GT_t$ sage grouse habitats per year are disturbed.

Other natural assets may be regarded as nonrenewable. For example, surface mining could permanently disturb the eagle habitat. The tradeoff here would be against a stock of eagle habitats, rather than against a flow of the service values of sage grouse. The constraint would take the following form:

$$E_0 - \sum_{t=1}^{T} \delta x_t \geq ET \qquad \text{(A13a)}$$

or

$$\sum_{t=1}^{T} \delta x_t \leq E_0 - ET \qquad \text{(A13b)}$$

where

E_0 = the current inventory of eagle habitat,

δ = a locality-specific factor for converting mined coal tonnage into units of disturbed eagle habitat, and

ET = the physical target set for undisturbed eagle habitat.

Constraint A13b says that coal mining operations over all years in the planning horizon cannot disturb more than $E_0 - ET$ units of eagle habitat. The dual variable for constraint A13b would be a dynamic scarcity rent; it would be the discounted marginal increase in future extraction, transportation, and scrubbing costs resulting from eagle habitat preservation.[6]

[5] Determining whether a natural asset is renewable or nonrenewable would be based on assessments made by qualified scientists.

[6] Constraints for other natural assets could involve effects from coal mining that accumulate for more than a year but do not run to the end of the planning horizon. Still other natural assets may require 0–1 mixed integer constraints to reflect a none-or-all effect on environmental asset preservation from coal mining. In any case, appropriate constraints can be added to the MSM to capture the essential features of natural asset preservation.

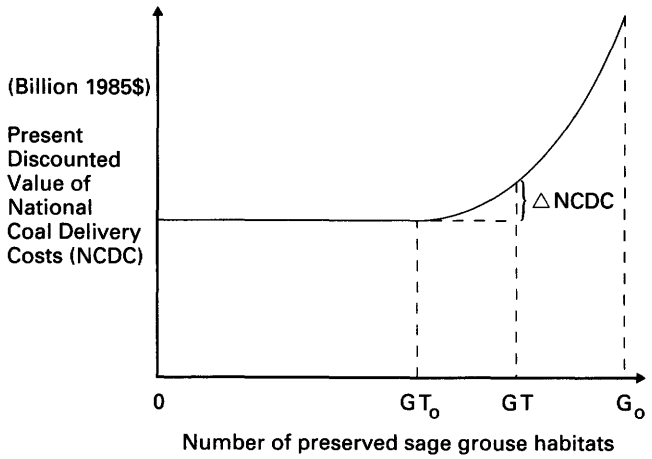

Figure A2. Cost-effective tradeoff between sage grouse habitat and national coal delivery costs.

A schedule of cost-effective tradeoffs could be projected if the MSM is solved with constraints like A12b and A13b. Figure A2 presents a hypothetical example. For any sage grouse habitat targets less than GT_0, national coal delivery costs are unaffected because sage grouse habitats (in specific regions) are colocated with high-cost or low-quality coal (coal that is not attractive to the market). For preservation targets greater than GT_0, costs increase as the constraint binds. The largest cost occurs when the target is set at the existing inventory of sage grouse habitats G_0.

With a target set at a specific level, such as *GT* in figure A2, the MSM would minimize costs of meeting that target, it would identify the areas where restrictions are required to preserve sage grouse habitat, and it would identify areas with sage grouse habitat where coal mining operations would be permitted.

Figure A3 illustrates the cost-effective tradeoffs that occur when the MSM meets the environmental protection targets. The number of sage grouse habitats to be protected is *GT*. Minimum cost or cost-effective allocation by the MSM would occur when marginal protection costs are equal in all regions for the last or marginal habitat required to be protected to meet the target. As figure 3A shows, this allocation occurs when GT^1 habitats are protected in region 1 (which, in this example, equals the total number of sage grouse habitats in region 1) and when GT^2 habitats are protected in region 2. All sage grouse habitats would be restricted for surface mining in region 1, but, in region 2, some of the sage grouse-inhabited area would be open to surface mining. The shaded areas of figure A3 represent the additional national coal delivery costs that would occur when coal land set asides protect sage grouse habitat (at level *GT*). The additional cost is the lowest cost at protection level *GT* because marginal costs are equal in the two regions in the MSM solution. No other allocation of protection between the two regions could reduce costs; for

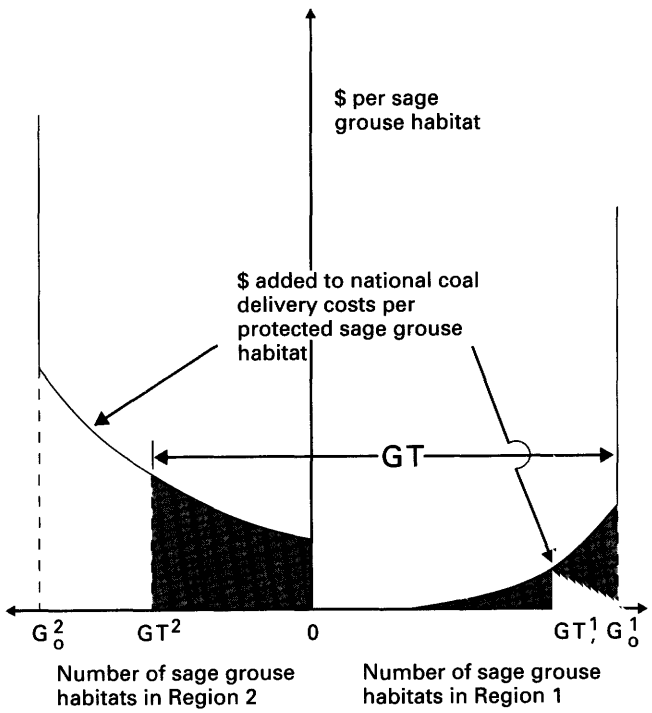

Figure A3. Cost-effective tradeoffs to achieve a given protection level for sage grouse habitat.

example, increasing the number of protected sage grouse habitats in region 1 would add more to coal delivery costs than would be saved by the off-setting reduction in protection in region 2. The addition to national coal delivery costs (for protection level *GT*) shown as the shaded areas of figure A3 is the same dollar amount shown as ΔNCDC in figure A2.

MSM Output Reports

MSM output is collected for presentation in summary reports. The most detailed of these reports includes projections on shipments from individual supply origins to individual demand destinations. Separate projections are provided for each index value: coal supply step (*s*), coal supply origin (*i*), coal demand destination (*j*), coal demand type (*k*), transport mode (*l*), and time period (*t*).

For each shipment, the MSM reports values for the following variables: tons, delivered cost, mining cost, transport cost, scrubbing cost, Btu content, scrubbing SO_x removal percentage, sulfur content, demand shadow value, sulfur shadow value, lock shadow value, transmission shadow value, and dynamic Ricardian rent. These reports provided the data for the Evansville, Ind., example shown in figure A1. The reports are available from the authors (at reproduction cost) for the base and restricted cases.

References

Chiang, Alpha C., 1984, Fundamental methods of mathematical economics: New York, McGraw-Hill, Inc., 788 p.

Hartwick, John M., 1982, Differential resource rents and the two theories of nonrenewable resource valuation: Resources and Energy, v. 4, p. 281–289.

Hotelling, H., 1931, The economics of exhaustible resources: Journal of Political Economy, v. 39, p. 137–175.

Nordhaus, William D., 1979, The efficient use of energy resources: New Haven, Conn., Yale University Press, 161 p.

Toman, Michael A., 1986, "Depletion effects" and nonrenewable resource supply: Land Economics, v. 62, no. 4, p. 341–352.

APPENDIX B—MINABLE COAL RESOURCE BASE MODULE

The Minable Coal Resource Base module contains the calculations necessary to estimate minable coal tonnage by sulfur and Btu content for 60 coal supply regions contained in the contiguous 48 States. Three steps are followed (see fig. B1):

1. Surface and underground coal tonnages are calculated using data from the U.S. Department of Energy's Demonstrated Reserve Base (DRB) files (U.S. Department of Energy 1982a, 1982b, 1982c, 1986a, and 1986b), the U.S. Geological Survey's National Coal Resources Data System (NCRDS), the Keystone Coal Industry Manual (1986), and various U.S. Bureau of Land Management (BLM) reports.
2. Triangular distributions of sulfur content (percent by weight) are estimated regionally using data from the U.S. Bureau of Mines' Analytic File, the U.S. Geological Survey's Trace element data base file, USCHEM, and the Keystone Manual.
3. The triangular distributions are applied to regional coal tonnage to estimate the quantity of surface and underground coal amounts available at specified sulfur content levels. The average Btu content of coal by region also is calculated using data from the sources listed in step 2 and data from the U.S. Department of Energy.

Details for each step follow.

Tonnage

This study's minable coal resource base estimates (with the exceptions noted below for three of the Dynamic Coal Allocation Model's (DCAM) coal supply regions) are drawn from two sources: the U.S. Department of Energy's DRB and the NCRDS (U.S. Geological Survey, 1981a, 1981b, 1982, 1987). The NCRDS contains point-located

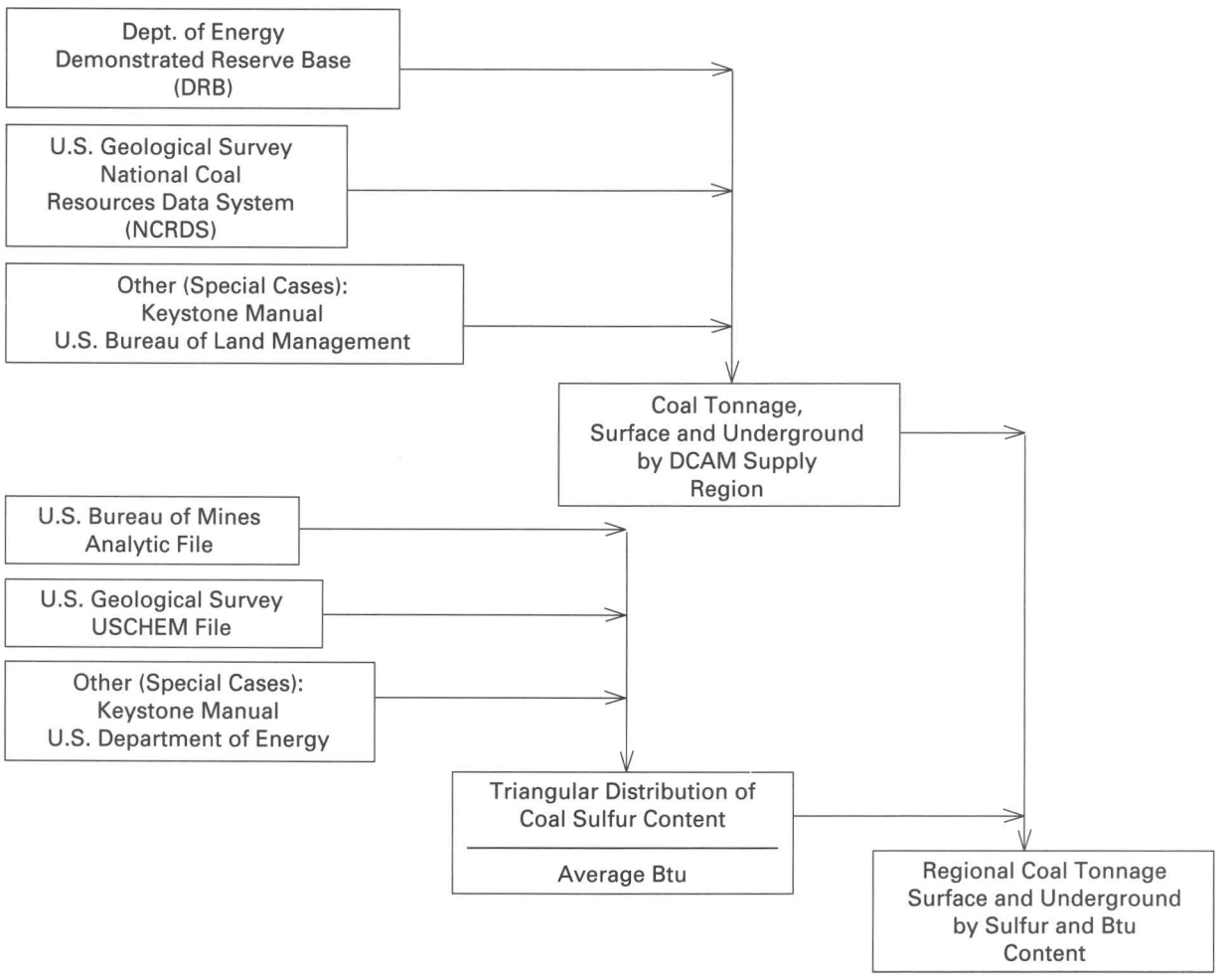

Figure B1. Procedures for estimating the minable coal resource base.

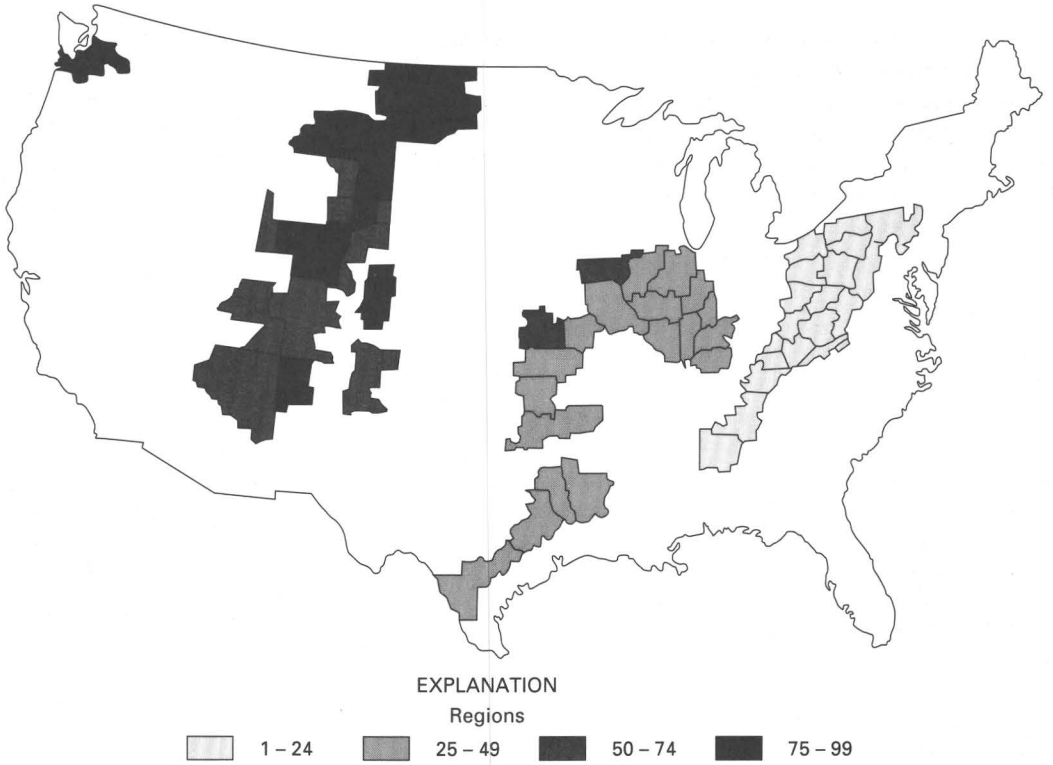

Figure B2. Coal supply regions in DCAM.

coal drill hole and coal depth data. (The procedures the NCRDS uses to estimate regional coal resources are described below.) The NCRDS coal tonnage estimates are based on more recent and more detailed geologic information than the DRB estimates. In regions where NCRDS data coverage is extensive, NCRDS estimates of coal tonnages are used. In areas where NCRDS coverage is not yet adequate, estimates of underground and surface coal resources are based on the DRB. In all cases, the NCRDS data used in this study are essentially "as is" from the data files.

Coal resource estimates for Alabama and North Dakota's major coal-producing regions (see regions 3, 80, and 98, table B1) are drawn from different sources because the DRB estimates are outdated and NCRDS coverage is incomplete. Alabama supply region 3, surface and underground resources, are taken from the Keystone Manual, whose estimates were recently compiled by the Alabama State Geological Survey (Keystone Coal Industry Manual, 1986). North Dakota surface coal resources in regions 80 and 98 are drawn from the U.S. Bureau of Land Management, North Dakota Resource Management Plan (U.S. Department of the Interior, 1986). The North Dakota estimates are based on recent BLM surveys and the North Dakota State Geological Survey. The coal-producing regions in Alabama and North Dakota are key areas for issues of concern in this study. Alabama supply region 3 is important because it contains a large amount of low-sulfur Eastern coal resources. The North Dakota regions are important because they contain low-cost surface-minable resources that are affected by Federal land-use restrictions.

DCAM delineates coal supply regions to include counties with similar characteristics in terms of their coal quality, geology, and topography (see Bernknopf, 1985, p. 66–67, for details). The groupings also reflect natural barriers. Table B1 lists counties assigned to specific coal supply regions; figure B2 shows that geographic distribution of the supply regions can include counties in more than one State.

Because supply regions and State boundaries do not coincide, several data management steps are followed to estimate coal resources for the DCAM coal supply regions.[1] Three steps are involved:

1. The minable coal resource base is compiled at the State level for 1985 from DRB, NCRDS, the Keystone Manual, and the BLM (table B2).[2] In Alabama, Montana, New Mexico, North Dakota, and Wyoming,

[1]Throughout the report, because tonnage estimates are aggregated from county estimates, there will be small rounding errors between regional and State estimates. These rounding errors sometimes become evident when tables in the text and the appendices are compared.

[2]The estimates in table B2 are for the base case; Federal land use restrictions are assumed not to be in effect.

where coal resource estimates are based on NCRDS, BLM, or the Keystone Manual, the estimates used in this study (columns 1 and 2) are higher than the estimates of the DRB as published by the U.S. Department of Energy (columns 3 and 4). Underground tonnage is 11.3 billion tons greater, and surface tonnage is 90.1 billion tons greater.

2. State estimates are assigned to coal supply regions using county data. The Federal government compiled county DRB estimates in 1971. The U.S. Geological Survey maintains a 1974 file of DRB estimates, which was generated using the 1971 State-to-county proportions (compiled by the U.S. Bureau of Mines). These proportions were applied to the 1985 DRB State estimates to obtain corresponding county estimates. Then county estimates were totaled to get DCAM supply region estimates. Thus, the DCAM supply region estimates for 1985 have two features: (1) they add to published 1985 DRB State estimates and (2) their county resources are the same proportion of State resources as in 1971. The use of county shares is the only method available to estimate county resources.
3. Keystone Manual data are used to estimate tonnage in Alabama supply region 3. Likewise, NCRDS and BLM data are used to estimate tonnage for DCAM supply regions in Montana, New Mexico, North Dakota, and Wyoming.

NCRDS applies special procedures to estimate the minable coal tonnage in the Wyoming portion of the Powder River basin, where the quantity of coal is large and of low-sulfur content. To estimate mining costs for this key region, coal resources have been split into three subregions, according to the coal beds' depth and other geologic features.

The three subregions are (1) the area where coal can be mined from the Wyodak bed in Campbell County, Wyo., (2) the other coal occurrence areas in Campbell County (mainly the Felix bed), and (3) the Wyodak, Smith, and Anderson beds in Converse County. The Wyodak bed in Campbell County has the country's lowest costing strippable coal. Coal beds average 80 feet in thickness, their overburden is 50 to 200 feet, and large-scale mining (up to 15 million tons per year, currently) in open pits exploits economies of scale to achieve low mining costs. In the second subregion in Campbell County, coal beds are dominated by the Felix bed and have less favorable geologic conditions than the Wyodak bed: the coal beds are not as thick and are separated by interburden. In addition, overburden (stripping) ratios in this part of the county are greater than on the Wyodak bed. Thus, mines on the Felix bed are expected to be small scale and high cost relative to mines on the Wyodak bed. The Converse County area has a mixture of the geologic features contained in the other two areas. The Wyodak bed is thinner than the one in Campbell County; Smith and Anderson are two other commercially attractive coal beds. Mining operations in Converse County are relatively small scale and high cost compared to mining operations on the Wyodak bed in Campbell County, but they are more favorable economically compared to potential mining operations on the Felix bed in Campbell County.

The NCRDS data, graphic display, and analysis techniques were used to estimate strippable coal resources in those western coal supply regions that contain sufficient coverage (such as the Powder River basin in Wyoming).[3] NCRDS consists of a variety of data files containing information about coal's quantity, quality, and geologic occurrence. The NCRDS data file, USTRAT, contains geologic descriptions of coal-bearing rock strata (including thickness) with latitude and longitude locations (x, y); it was queried and used to estimate total coal thickness, which is based on geographic occurrence, bed thicknesses, and bed depth. A subset of "coal only" records was retrieved from this data set. (The initial search would have included data for some stratigraphic units that did not contain any coal.) In the case of Campbell County, Wyo. (part of the Powder River basin, region 96), coal thicknesses for thin rider coal beds to the Wyodak bed were removed in the final data set. NCRDS processed this final data set using a surface-fitting program to produce a coal thickness contour map of all coal at a depth of 250 feet or less. The 250-foot depth cutoff was chosen to represent the economic limit for surface mining operations in the Western United States.

The final data set also was used to estimate overburden ratios (coal depth divided by thickness). The value for the depth to the top of the coal was compiled from the drill hole data and passed to a surface modeling program to produce a general coal depth (to the top of the coal) contour map. The depth estimates were then divided by the coal thickness estimates to produce a general overburden (stripping) ratio map.

The 250-foot coal depth contour line (the outside boundary of all locations having coal down to a maximum depth of 250 feet to the bottom of the coal was used in combination with the generalized coal outcrop boundaries in each basin to identify the area for strip mining (on or inside the 250-foot depth and coal outcrop lines). The strip mining boundary was combined with the overburden (stripping) ratio contour map to identify the boundaries of areas for surface mining, by overburden (stripping) ratio. Coal tonnage in each stripping ratio category was estimated by multiplying area (in acres) by coal density (in tons per acre-foot) by coal thickness (in feet).

NCRDS data and methods were used to estimate strippable coal resources in eight western coal supply regions: regions 67, 68, 75, 90, 91, 92, 95, and 96. In supply region 96 (the Powder River basin in Wyoming), the NCRDS methods (as described in the preceding paragraphs)

[3]A Prime 9750 computer containing the NCRDS data and software performed the calculations.

also were applied to each of the three subregions that differ from each other in terms of coal geology and mining costs. The NCRDS estimates of strippable coal resources in the eight regions (and by subregion for region 96) are shown in table B3 (base case).

Table B3 also incudes strippable coal resource estimates for supply regions 80 and 98 (BLM estimates) and strippable coal resource estimates for supply regions 93 and 94 (DRB estimates). The 12 DCAM coal supply regions shown in table B3 are the supply regions, analyzed in this report, where BLM land-use restrictions affect access to coal.

Table B4 provides estimates of strippable and underground coal resources for all 60 DCAM coal supply regions. Table B3 estimates are incorporated into table B4. Except for the supply region 3 estimate (strippable coal) and the estimates for the 12 regions listed in table B3 (strippable coal), all estimates in table B4 are based on the DRB.

Triangular Distributions of Sulfur Content and Estimates of Average Btu Content

Triangular distributions of sulfur content are estimated for each DCAM supply region using three measures of sulfur content by weight (on an as-received basis): the minimum value, the maximum value, and the average sulfur content from coal samples gathered in each region. The minimum, maximum, and average values are sufficient to specify a triangular probability density function (pdf) of sulfur content for each supply region. To assure unbiased estimates of distribution parameters, the sample data are assumed to be realizations of independent, identically distributed random variables for the sampled areas.[4] A triangular distribution or pdf of sulfur contents has the following form. A new variable a is defined so that

$$M-L=a(H-L). \quad \text{(B1)}$$

That is, a is the proportion of the distance between H and L at which the mode is positioned (relative to L).

The study lets y represent probability (measured on the vertical, or y, axis) and x represent sulfur content (measured on the horizontal, or x, axis). The condition that area $LHK = 1$ is used to determine the following equations:

Line segment LK in figure B3:

$$y_1 = -2L/a(H-L)^2+[2/a(H-L)^2]x \quad \text{(B2)}$$

Line segment KH in figure B3:

$$y_2 = 2H/(1-a)(H-L)^2-[2/(1-a)(H-L)^2]x \quad \text{(B3)}$$

The average sulfur content A is given by

$$A=\int_L^M xy_1dx+\int_M^H xy_2dx \quad \text{(B4)}$$

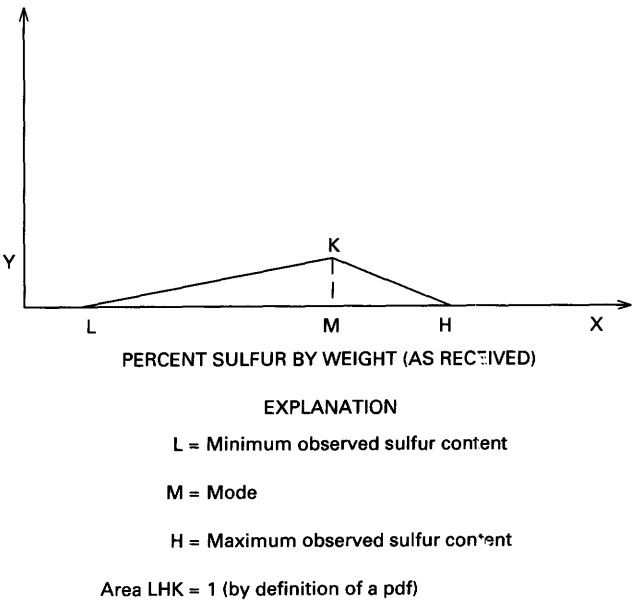

Figure B3. Probability density function (pdf) for sulfur content.

Upon integration and simplification

$$M=L+3(A-H)+2(H-L). \quad \text{(B5)}$$

Expression B5 shows that the average (A), low (L), and high (H) sulfur contents are sufficient to define a triangular pdf. Given L, A, and H, M is obtained by substitution into equation B5. Proportionality variable a is then obtained from expression B1. Finally, the pdf (fig. B3) is obtained after appropriate substitution into equations B2 and B3.

The estimates of the minimum (L), average (A), and maximum (H) coal sulfur contents by DCAM supply region are obtained from three data sources:

1. The U.S. Geological Survey maintains the U.S. Bureau of Mines' Analytic File that contains estimates by county of sulfur content (on a dry basis). An "observation," sorted by bedcode or grouped by a "dummy" code (when bedcode is not known), contains data on the number of analyses including (across those analyses) the maximum, minimum, and average sulfur contents. The file contains data collected from the 1920's through the 1960's. It is assumed that coal samples in a supply region represent the coal currently available there.[5] All samples in a supply region are

[4]Since data are drawn from several sources and the method and time span of collection are not known precisely, it is difficult to judge whether this assumption can be supported. Nonetheless, the study's objective is to estimate coal sulfur and Btu content using the latest and best available data without introducing any obvious problem of bias.

[5]Many of the samples are grab samples taken from train cars and trucks loaded with coal purchased by the Federal government. The long time span of the sampling and changes in sampling methods make it difficult to judge whether the samples are a good representation of sulfur for coal still left to be mined (which is the objective of forming the sulfur pdf's). Undoubtedly, some of the coal beds by specific location are already mined out. Even if they are not mined out, the lateral and vertical spread of mining most likely does bring in areas not well represented in the sampling file. Furthermore, bedcodes are not available for many samples. In this study, no attempt is made to track sulfur content by coal bed.

pooled to estimate the minimum, maximum, and average sulfur contents. Dry basis estimates are converted to estimates on an as-received basis. The estimates of average moisture content, available for each observation, are used to make the conversion to an as-received basis.

2. The U.S. Geological Survey maintains a file, known as USCHEM, of coal quality sample data. USCHEM is a dynamic data base. Data collection for it began in the mid-1970's. New sample data are being added as they become available from State cooperative coal investigation projects and from analyses undertaken by Federal and State research geologists.[6] USCHEM was merged with the Bureau of Mines' Analytic File to calculate minimum, maximum, and average sulfur contents by supply region.
3. The Keystone Manual is the third source of data for estimating the distribution of coal sulfur content. The data in the Keystone Manual covers supply regions that are not well represented in USCHEM. For those regions, Keystone Manual estimates were used in place of those developed from the merged Bureau of Mines-Geological Survey files. Table B5 provides the final estimates of minimum, maximum, and average sulfur content by supply region.

The average Btu of coal by supply region, also, is estimated using data from the three sources described above and from one other source. The U.S. Department of Energy collects data on average Btu content for coal shipments by county of origin (form 423 data) (U.S. Department of Energy, 1986a, 1986b). These data were judged to be more representative (compared to data from the other sources) of coal Btu content for certain Western supply regions where coal production has been increasing recently. Table B5 lists the final estimates of average Btu by supply region.

Regional Tonnages by Sulfur and Btu Content

Regional tonnages by sulfur content are estimated by applying sulfur distributions (table B5) to the minable coal resource base (table B3 for base case and table C1 for restricted cases). Calculating regional coal resource tonnage by sulfur content takes three or four steps, determined by the following rules:

1. Coal containing up to 0.6 lb of sulfur per million Btu is very attractive to the market. Such coal can be burned outright and still achieve SO_x discharge standards under State Implementation Plans (SIP) and Federal new source performance standards (NSPS). To obtain tonnage, the sulfur pdf is integrated up to the 0.6 lb limit to ascertain the proportion of the area under the pdf that is no more than that limit. That proportion is applied to the total estimate of surface and underground tonnage for the supply region. The sulfur content averaged up to the limit of 0.6 lb is assigned as the sulfur value for the coal tonnage.
2. When the total remaining proportion of sulfur content is greater than 0.5 in all supply regions (other than certain Appalachian regions—see step 3), the region's remaining sulfur proportion is halved. Otherwise, the proportion remains as estimated. The sulfur content is averaged across each proportion. Tonnage by sulfur content is estimated as the product of the proportion at each sulfur level multiplied by total tonnage, and the appropriate average sulfur content is assigned.
3. Large resource tonnages of remaining low-sulfur Eastern coal are found in certain Appalachian regions (3, 4, 8, 9, 10, 21, and 23—see table B1 and fig. B1 for geographic location). Currently, coal mined from these regions, up to about 1 percent sulfur or 0.9 lb of sulfur per million Btu, often is blended with lower sulfur coal and burned outright to meet SIP and NSPS standards. To capture price and production patterns, tonnage is classified according to four sulfur content proportions: 0.0 to 0.6 lb of sulfur per million Btu, 0.7 to 0.9 lb of sulfur per million Btu, and two equal proportions over the remaining sulfur content (upper ranges vary by region). The sulfur pdf is integrated to determine the proportion of tonnage in each of the four sulfur content classes. Like in steps 1 and 2, multiplying the product of the sulfur proportion by the total resources yields a tonnage estimate for each sulfur content class. The sulfur content averaged, by class, is assigned to the tonnage of each class.

Table B6 compiles the regional estimates of deliverable coal tonnage by sulfur and Btu content.

[6]The USCHEM data used in this study (5,201 observations) excluded bench samples. Because bench samples often do not represent coal beds, they are omitted to reduce an obvious problem of bias.

References

Bernknopf, Richard L., 1985, Domestic coal distribution: an interregional programming model for the U.S. coal industry: Greenwich, Conn., JAI Press, 230 p.

Keystone Coal Industry Manual, 1986: New York, McGraw-Hill Inc., 1306 p.

U.S. Department of Energy, 1982a, Energy Information Administration, Eastern coal reserves: Washington, D.C., U.S. Government Printing Office, 371 p.

———1982b, Energy Information Administration, Western coal reserves, part 1: Washington, D.C., U.S. Government Printing Office, 347 p.

———1982c, Energy Information Administration, Western coal reserves, part 2: Washington, D.C., U.S. Government Printing Office, 347 p.

———1986a, Energy Information Administration, Coal production 1985: Washington, D.C., U.S. Government Printing Office, table A3, p. 97.

———1986b, Energy Information Administration, Cost and quality of fuels for electric utility plants 1985: Washington, D.C., U.S. Government Printing Office, 212 p.
U.S. Department of the Interior, 1986, Bureau of Land Management, North Dakota draft Resource Management Plan and environmental impact statement: Dickinson, N. Dak., Bureau of Land Management, 173 p.
U.S. Geological Survey, 1981a, Guide for the calculation of coal resources using the computer program GARNET: Reston, Va., Open-File Report 81–563, 34 p.
———1981b, Stratigraphic sequence form manual—guide for entering the National Coal Resources Data System (NCRDS): Reston, Va., Open-File Report 81–562, 11 p.
———1982, Guide to the use of PACER, the data retrieval and update system for the National Coal Resources Data System (NCRDS): Reston, Va., Open-File Report 82–291, 99 p.
———1987, NCRDS data files: Reston, Va., Branch of Coal Geology, Administrative Report, p. 1.

APPENDIX C—BLM LAND-USE RESTRICTIONS

The Federal Land Policy and Management Act of 1976 (FLPMA) formally mandates that Federal lands be administered to benefit the entire Nation. The principles of multiple use and sustained yield are to be achieved through a planning process. Managing public lands and associated resource values is intended to account for the wide range of possible uses for present and future generations (Hagenstein, 1984; Brubaker, 1984).

Public lands managed by the Bureau of Land Management (BLM) cover some 291 million acres, of which 177 million acres are in Western States and 114 million acres are in Alaska. (A small amount of acreage is in Eastern States.) These lands contain range land that contributes to the country's meat and timber supplies. In addition, these lands are home to an abundance of wildlife, have cultural and historical values, and provide many assorted recreational opportunities. The lands also contain a significant amount of fossil fuel (U.S. Department of the Interior, 1983). Given this variation in types, locations, and potential uses of these resources, land-management conflicts are bound to arise.

The BLM, in fulfilling the requirements of FLPMA, the Federal Coal Leasing Amendments Act of 1976, the Surface Mining Control and Reclamation Act of 1977, and the National Environmental Policy Act of 1969, is required to conduct a planning evaluation. This process produces a Resource Management Plan (RMP). A RMP is a multiple-use plan that directs management of uses for all resources on and under Federal lands. Recognizing the many competing uses of the lands under the BLM's jurisdiction is central to the multiple-use planning process. A plan's analysis is a forecast of potential land uses for 10 to 15 years. Each RMP assesses land-use alternatives within a resource management area, independent of other resource management areas.

In any given RMP process, certain land areas are identified for limited, restrictive, or exclusive use. One outcome of this process is the identification of coal lands that are acceptable for further leasing consideration. Lands that are subject to coal leasing as dictated under the mineral leasing laws are subject to the requirements of 43 CFR 3420.1, which defines a four-level screening process. The first screen identifies land with coal development potential. Of all the acres that are presumed to have coal resources nationally, BLM is responsible for managing 398 million acres that are designated as having future leasing potential under the RMP process (U.S. Department of the Interior, 1985). These areas contain approximately 194.7 billion tons of coal.

BLM's second screen identifies lands included by the first screen that should be restricted lands, off limits to coal development. The purpose is to identify, and thus protect, the Federal lands' most sensitive and valuable features. The second screen employs 20 criteria. Lands that are unsuitable for further coal leasing include

1. existing Federal land systems such as the National Park System and National Recreation Areas,
2. existing rights-of-way and easements,
3. buffer zones along rights-of-way and adjacent to communities and buildings,
4. wilderness study areas,
5. scenic areas,
6. lands being used for scientific study.
7. publicly owned places on Federal lands that are included in the National Register of Historic Places,
8. Federal lands designated as natural areas or as National Natural Landmarks,
9. federally designated critical habitat for threatened or endangered plant and animal species,
10. Federal lands containing habitat that States determine to be essential for plant or animal species,
11. lands containing a bald or golden eagle nest or a buffer zone,
12. bald and golden eagle migration and wintering areas on Federal lands,
13. falcon nesting sites and buffer zones on Federal lands,
14. high-priority habitat for migratory bird species,
15. fish and wildlife habitat for resident species on Federal lands as determined by States,
16. riverine, coastal, and special flood plains necessary to protect life and property,
17. lands that the surface management agency has committed to use as municipal watersheds,
18. Federal lands with National Resource Waters as identified by States, and a buffer zone of Federal lands 1/4 mile from the outer edge of the far banks of the water,
19. alluvial valley floor protection, and
20. Federal lands with proposed State restrictions.

Criteria 1, 2, 3, and 6 refer to land status; criteria 4, 5, and 8 refer to recreational and natural values; criterion 7 refers to cultural resources; criteria 9 through 15 refer to wildlife; criteria 16 through 19 refer to watersheds; and criterion 20 refers to State-proposed issues.

The third screen identifies conflicts between coal development and the need to protect other resources such that they are available for multiple-use activities. If the other resources are deemed to be more important or the impacts cannot be mitigated, then the coal lands are removed from further consideration.

The fourth screen involves consulting with the surface land owners as to their preference regarding coal development. If a significant number of surface owners oppose mining operations, the area is to be considered suitable only for underground mining. An addendum to this appendix presents the formal language for each criterion and the screens.

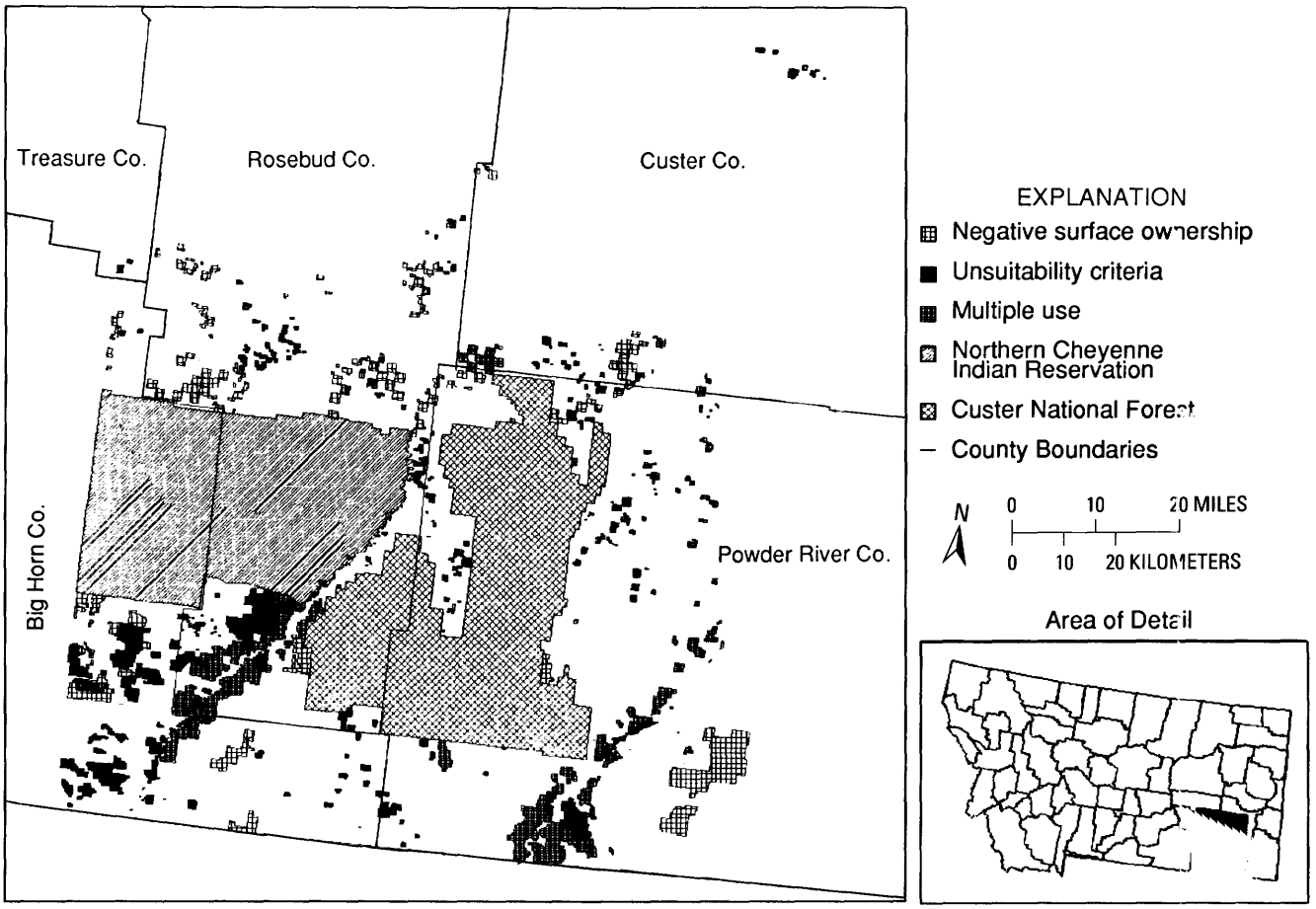

Figure C1. BLM land-use restrictions on coal lands in the Powder River basin, Montana (supply region 95).

The screening process has an inherent subjective element. For example, the screening process is subject to change as society's values evolve, since circumstances might well change regarding land-use regulations.

There might be disagreement as to the appropriate size of various types of buffer zones. For instance, a redefinition of buffer zones may be required because of changes in scientific knowledge, changes in preferences, or changes in the endangered species list. Critical habitat zones may be expanded or reduced based on the continuing development of scientific knowledge. However, predicting or projecting these changes is well beyond this study's scope. As such, coal lands that the BLM resource management planning screening process could restrict were quantified, using available BLM boundary data.

Table C1 presents a sample of lands determined unsuitable by the second screening process. This list of restricted lands, classified according to the criterion applied, is presented to show the restrictions' diversity (these data were not utilized in the model process). Examining the table promotes the conclusion that no single criterion leads to most or all of the land restrictions. All resource management areas have lands restricted due to the land-status criteria (1, 2, 3, and 6), while only some of the resource planning areas have lands set aside under wildlife-issue criteria (9 through 15).

Table C2 presents the number of acres that have been removed from consideration for further coal leasing as a result of screens 2, 3, and 4. Of the three screens, surface owner objections to development restrict the fewest acres. The second and third screens remove a relatively equal amount of acreage from consideration for future coal leasing. The screening process concludes by determining the "net" restricted acreage (eliminates any double counting of acres), as presented in table C2.

The Powder River Resource Area in the Powder River basin of Montana provides a good example of using the screening process. The impact of the land-use restrictions is extensive. Figure C1 illustrates the land-use restrictions for the Montana portion of the basin, revealing the total area under consideration for land-use restriction is 1,145,285 acres. The Custer National Forest occupies 495,119 acres while the Northern Cheyenne Indian Reservation occupies 446,327 acres. The multiple-use screen eliminates another 99,090 acres. The unsuitability criteria eliminate 104,749 acres. Similar to this example, each RMP delineates the amount of land affected.

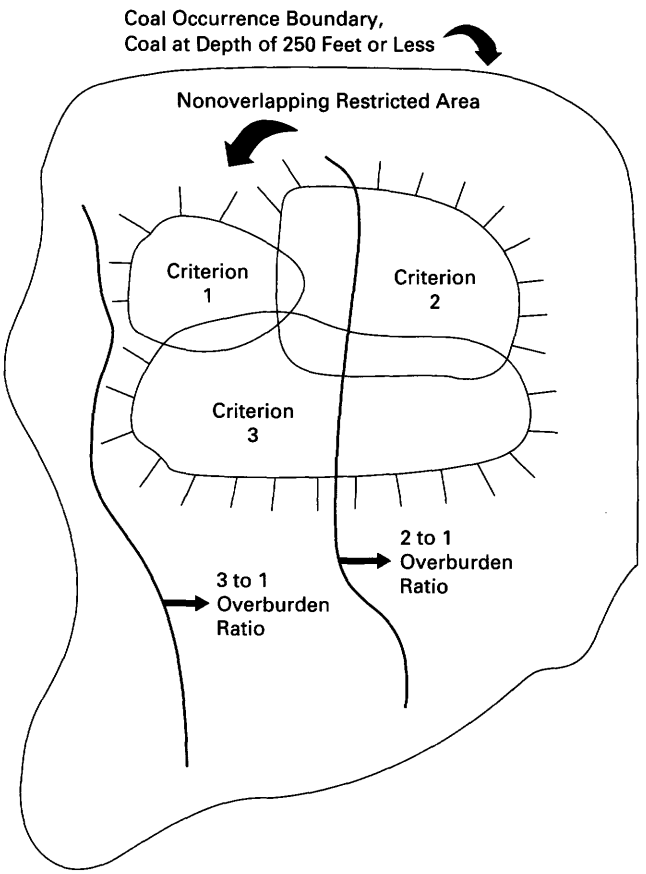

Figure C2. Boundaries used in NCRDS to estimate restricted tonnage by overburden ratio.

To link the land-use restrictions to the amount of coal resources effectively restricted from production, the restricted areas' boundaries (as delineated in the associated RMP's) were entered into the National Coal Resources Data System (NCRDS) for processing by geographic information system (GIS) technology. (Fig. C2 illustrates the various boundaries used to estimate the restricted acreage.) The geographic boundaries of the areas restricted by any combination of screens are overlayed onto the area that may contain strippable coal (no more than 250 feet deep). If any of the restricted areas overlap, only the outside boundary is used, to avoid any double counting of restricted acreage. Next, NCRDS delineates the unrestricted area of strippable coal, classified by overburden (stripping) ratio. (Appendix B also discusses this issue.) The area restricted to surface mining is where the base case coal area intersects (separately for each overburden (stripping) ratio category) with the "net" restricted area. Multiplying this restricted acreage by coal density (tons per acre-foot) and coal thickness (feet) estimates restricted tonnage. As a final step, the restricted tons are subtracted from the base case tonnage estimate to yield the tonnage available for mining after the land-use restrictions have been imposed.

Estimates of coal resources, with and without BLM land-use restrictions, were made in the following Dynamic Coal Allocation Model (DCAM) supply regions: 67, 68, 75, 90, 91, 92, 95, and 96. In four other western coal supply regions (80, 93, 94, and 98) non-GIS procedures were applied because NCRDS data coverage was insufficient. In these four regions, estimates of coal resources (restricted case) were based on a proportion of the number of restricted acres relative to the number of acres in the base case. The base case tons (from table B3) were multiplied by this proportion to estimate each supply region's restricted case tonnage. The tonnage and acreage estimates for the base and restricted cases are taken directly from the BLM Resource Management Plans and the U.S. Department of Energy's Demonstrated Reserve Base (DRB).

Table C3 provides estimates of strippable coal tonnage in the 12 western coal supply regions for three cases (base, restricted, and unsuitability criteria lifted). Total tonnage of strippable coal (base case) in the 12 regions is about 173 billion tons, which represents about 71 percent of the Nation's strippable coal resources. When BLM land-use restrictions are applied, this estimate falls by about 67 billion tons to approximately 106 billion tons. The estimates in the final column show the available tonnage if the unsuitability criteria restrictions were lifted. Compared to the middle column, an additional 14 billion tons of coal are made available for lease and production when the unsuitability criteria land-use restrictions are lifted but the multiple-use and surface owner consent restrictions are maintained.

DCAM is used to analyze national coal delivery costs for nine alternative land-use restriction cases (outlined in fig. C3). Each case uses the appropriate estimates of strippable coal resources from table C3 to determine a base case or a restricted case cost. The restricted cases ordinarily

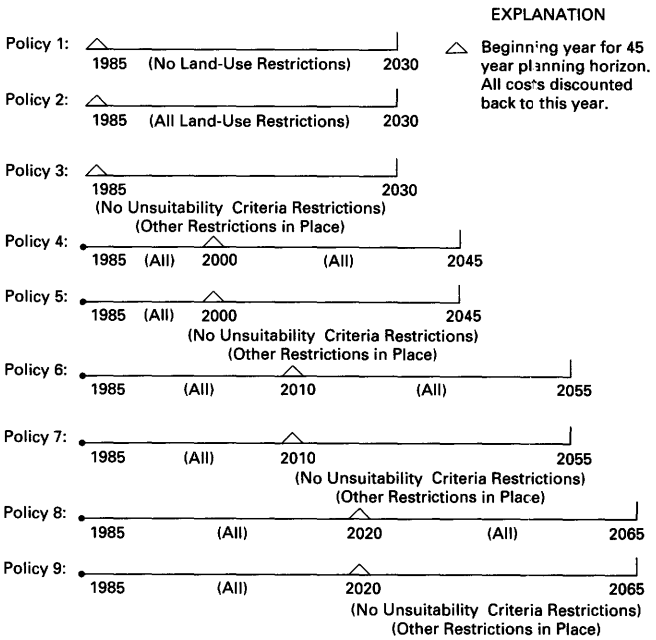

Figure C3. Alternative land-use restriction policy cases.

will have higher costs than the base case because the restrictions limit coal shipments from low-cost coal supply regions.

The nine alternative policy cases shown in figure C3 are paired with each other (as appropriate) and analyzed as "with" and "without" cases to provide the following estimates of additional national costs or savings:

Policy 2 versus Policy 1	Additional costs of imposing all land-use restrictions, from the vantage point of the year 1985.
Policy 3 versus Policy 2	Cost savings if unsuitability criteria restrictions are lifted in 1985, from the vantage point of the year 1985.
Policy 5 versus Policy 4	Cost savings if unsuitability criteria restrictions are lifted in 2000, from the vantage point of the year 2000.
Policy 7 versus Policy 6	Cost savings if unsuitability criteria restrictions are lifted in 2010, from the vantage point of the year 2010.
Policy 9 versus Policy 8	Cost savings if unsuitability criteria restrictions are lifted in 2020, from the vantage point of the year 2020.

In all policy comparisons, the planning horizon is kept constant at 45 years. Mining, scrubbing, and transportation costs are in present value terms discounted back to the planning horizon's initial year. The cost difference between policy 2 and policy 1 is an estimate of the opportunity costs of Federal land-use restrictions for the 45-year period from 1985 to 2030. The other cases examine the cost savings of lifting or eliminating the unsuitability criteria land-use restrictions at various future times.

ADDENDUM TO APPENDIX C

Criteria for Assessing Lands Unsuitable for All or Certain Stipulated Methods of Coal Mining Source: Office of the Federal Register, 1986, Public Lands: Interior, 43 CFR 1000–3999.

This addendum describes the criteria for assessing whether lands are unsuitable for coal leasing. Three different screens are detailed: Screen #2—unsuitability criteria; Screen #3—multiple-use conflicts; and Screen #4— surface owner consent.

Unsuitability Criteria: Screen #2

A. Criterion Number 1

All Federal lands included in the following land systems or categories shall be considered unsuitable: National Park System, National Wildlife Refuge System, National System of Trails, National Wilderness Preservation System, National Wild and Scenic Rivers System, National Recreation Areas, lands acquired with money derived from the Land and Water Conservation Fund, National Forests, and Federal lands in incorporated cities, towns, and villages.

1. Exceptions
   (a) A lease may be issued within the boundaries of any National Forest if the Secretary [Department of Agriculture] finds no significant recreational, timber, economic or other values which may be incompatible with the lease; and (a) surface operations and impacts are incident to an underground coal mine, or (b) where the Secretary of Agriculture determines, with respect to lands which do not have significant forest cover within those National Forests west of the 100th Meridian, that surface mining may be in compliance with the Multiple-Use Sustained-Yield Act of 1960, the Federal Coal Leasing Amendments Act of 1976 and the Surface Mining Control and Reclamation Act of 1977.
   (b) A lease may be issued within the Custer National Forest with the consent of the Department of Agriculture as long as no surface coal mining operations are permitted.
2. Exemptions

   The application of this criterion to lands within the listed land systems and categories is subject to valid existing rights, and does not apply to surface coal mining operations existing on August 3, 1977. The application of the portion of this criterion applying to land proposed for inclusion in the listed systems does not apply to lands to which substantial legal and financial commitments were made prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

B. Criterion Number 2

Federal lands that are within rights-of-way or easements or within surface leases for residential, commercial industrial, or other public purposes, on federally owned surface shall be considered unsuitable.

1. Exceptions

   A lease may be issued, and mining operations approved, in such areas if the surface management agency determines that:
   (a) All or certain types of coal development (e.g., underground mining) will not interfere with the right-of-way or easement; or
   (b) The right-of-way or easement was granted for mining purposes; or

(c) The right-of-way or easement was issued for a purpose for which it is not being used; or
(d) The parties involved in the right-of-way or easement agree in writing to leasing; or
(e) It is impractical to exclude such areas due to the location of coal and method of mining and such areas or uses can be protected through appropriate stipulations.

2. Exemptions
This criterion does not apply to lands to which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which included operations on which a permit has been issued.

C. Criterion Number 3
Federal lands affected by section 522(e) (4) and (5) of the Surface Mining Control and Reclamation Act of 1977 shall be considered unsuitable. This includes lands within 100 feet of a cemetery, or within 300 feet of any public building, school, church, community or institutional building or public park or within 300 feet of an occupied dwelling.

1. Exceptions
A lease may be issued for lands:
(a) Used as mine access roads or haulage roads that join the right-of-way for a public road;
(b) For which the Office of Surface Mining Reclamation and Enforcement has issued a permit to have public roads relocated;
(c) If, after public notice and opportunity for public hearing in the locality, a written finding is made by the authorized officer that the interests of the public and the landowners affected by mining within 100 feet of a public road will be protected;
(d) For which owners of occupied dwellings have given written permission to mine within 300 feet of their buildings.

2. Exemptions
The application of this criterion is subject to valid existing rights, and does not apply to surface coal mining operations existing on August 3, 1977.

D. Criterion Number 4
Federal lands designated as wilderness study areas shall be considered unsuitable while under review by the Administration and the Congress for possible wilderness designation. For any Federal land which is to be leased or mined prior to completion of the wilderness inventory by the surface management agency, the environmental assessment or impact statement on the lease sale or mine plan shall consider whether the land possesses the characteristics of a wilderness study area. If the finding is affirmative, the land shall be considered unsuitable, unless issuance of noncompetitive coal leases and mining on leases is authorized under the Wilderness Act and the Federal Land Policy and Management Act of 1976.

1. Exemption
The application of this criterion to lands for which the Bureau of Land Management is the surface management agency and lands in designated wilderness areas in National Forests is subject to valid existing rights.

E. Criterion Number 5
Scenic Federal lands designated by visual resource management analysis as Class I (an area of outstanding scenic quality or high visual sensitivity) but not currently on the National Register of Natural Landmarks shall be considered unsuitable. A lease may be issued if the surface management agency determines that surface coal mining operations will not significantly diminish or adversely affect the scenic quality of the designated area.

1. Exemptions
This criterion does not apply to lands to which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

F. Criterion Number 6
Federal lands under permit by the surface management agency, and being used for scientific studies involving food or fiber production, natural resources, or technology demonstrations and experiments shall be considered unsuitable for the duration of the study, demonstration or experiment, except where mining could be conducted in such a way as to enhance or not jeopardize the purposes of the study, as determined by the surface management agency, or where the principal scientific user or agency gives written concurrence to all or certain methods of mining.

1. Exemptions
This criterion does not apply to lands to which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

G. Criterion Number 7
All publicly owned places on Federal lands which are included in the National Register of Historic Places shall be considered unsuitable. This shall include areas that the surface management agency determines, after consultation with the Advisory Council on Historic Preservation and the State Historic Preservation Officer, are necessary to protect the inherent values of the property that made it eligible for listing in the National Register.

1. Exceptions
   All or certain stipulated methods of coal mining may be allowed if, after consultation with the Advisory Council on Historic Preservation and the State Historic Preservation Officer, they are approved by the surface management agency, and, where appropriate, the State or local agency with jurisdiction over the historic site.
2. Exemptions
   This criterion does not apply to lands to which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

H. Criterion Number 8
Federal lands designated as natural areas or as National Natural Landmarks shall be considered unsuitable.
1. Exceptions
   A lease may be issued and mining operation approved in an area or site if the surface management agency determines that:
   (a) With the concurrence of the State, the area or site is of regional or local significance only;
   (b) The use of appropriate stipulated mining technology will result in no significant adverse impact to the area or site; or
   (c) The mining of the coal resource under appropriate stipulations will enhance information recovery (e.g., paleontological sites).
2. Exemptions
   This criterion does not apply to lands to which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which includes operations on which a permit has been issued.

I. Criterion Number 9
Federally designated critical habitat for threatened or endangered plant and animal species, and habitat for Federal threatened or endangered species which is determined by the Fish and Wildlife Service and the surface management agency to be of essential value and where the presence of threatened or endangered species has been scientifically documented, shall be considered unsuitable.
1. Exemptions
   A lease may be issued and mining operations approved if, after consultation with the Fish and Wildlife Service, the Service determines that the proposed activity is not likely to jeopardize the continued existence of the listed species and/or its critical habitat.
2. Exemptions
   This criterion does not apply to lands to which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

J. Criterion Number 10
Federal lands containing habitat determined to be critical or essential for plant or animal species listed by a State pursuant to State law as endangered or threatened shall be considered unsuitable.
1. Exceptions
   A lease may be issued and mining operations approved if, after consultation with the State, the surface management agency determines that the species will not be adversely affected by all or certain stipulated methods of coal mining.
2. Exemptions
   This criterion does not apply to lands to which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

K. Criterion Number 11
A bald or golden eagle nest or site on Federal lands that is determined to be active and an appropriate buffer zone of land around the nest site shall be considered unsuitable. Consideration of availability of habitat for prey species and of terrain shall be included in the determination of buffer zones. Buffer zones shall be determined in consultation with the Fish and Wildlife Service.
1. Exceptions
   A lease may be issued if:
   (a) It can be conditioned in such a way, either in manner or period of operation, that eagles will not be disturbed during breeding season; or
   (b) The surface management agency, with the concurrence of the Fish and Wildlife Service, determines that the golden eagle nest(s) will be moved.
   (c) Buffer zones may be decreased if the surface management agency determines that the active eagle nests will not be adversely affected.
2. Exemptions
   This criterion does not apply to lands to which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

L. Criterion Number 12

Bald and golden eagle roost and concentration areas on Federal lands used during migration and wintering shall be considered unsuitable.

1. Exceptions

A lease may be issued if the surface management agency determines that all or certain stipulated methods of coal mining can be conducted in such a way, and during such periods of time, to ensure that eagles shall not be adversely disturbed.

2. Exemptions

This criterion does not apply to lands to which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

M. Criterion Number 13

Federal lands containing a falcon (excluding kestrel) cliff nesting site with an active nest and a buffer zone of Federal land around the nest site shall be considered unsuitable. Consideration of availability of habitat for prey species and of terrain shall be included in the determination of buffer zones. Buffer zones shall be determined in consultation with the Fish and Wildlife Service.

1. Exceptions

A lease may be issued where the surface management agency, after consultation with the Fish and Wildlife Service, determines that all or certain stipulated methods of coal mining will not adversely affect the falcon habitat during the periods when such habitat is used by the falcons.

2. Exemptions

This criterion does not apply to lands to which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

N. Criterion Number 14

Federal lands which are high priority habitat for migratory bird species of high Federal interest on a regional or national basis, as determined jointly by the surface management agency and the Fish and Wildlife Service, shall be considered unsuitable.

1. Exceptions

A lease may be issued where the surface management agency, after consultation with the Fish and Wildlife Service, determines that all or certain stipulated methods of coal mining will not adversely affect the migratory bird habitat during the periods when such habitat is used by the species.

2. Exemptions

This criterion does not apply to lands to which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

O. Criterion Number 15

Federal lands which the surface management agency and the State jointly agree are fish and wildlife habitat for resident species of high interest to the State and which are essential for maintaining these priority wildlife species shall be considered unsuitable. Examples of such lands which serve a critical function for the species involved include:

(1) Active dancing and strutting grounds for sage grouse, sharp-tailed grouse, and prairie chicken;
(2) Winter ranges most critical for deer, antelope, and elk; and
(3) Migration corridors for elk.

A lease may be issued if, after consultation with the State, the surface management agency determines that all or certain stipulated methods of coal mining will not have a significant long-term impact on the species being protected.

1. Exemptions

This criterion does not apply to lands to which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

P. Criterion Number 16

Federal lands in riverine, coastal and special floodplains (100-year recurrence interval) on which the surface management agency determines that mining could not be undertaken without substantial threat of loss of life or property shall be considered unsuitable for all or certain stipulated methods of coal mining.

1. Exemptions

This criterion does not apply to lands to which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

Q. Criterion Number 17

Federal lands which have been committed by the surface management agency to use as municipal watersheds shall be considered unsuitable.

1. Exceptions

A lease may be issued where the surface management agency in consultation with the municipality (incorporated entity) or the responsible governmental unit determines, as a result of studies, that

all or certain stipulated methods of coal mining will not adversely affect the watershed to any significant degree.

2. Exemptions
This criterion does not apply to lands to which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

R. Criterion Number 18
Federal lands with National Resource Waters, as identified by States in their water quality management plans, and a buffer zone of Federal lands 1/4 mile from the outer edge of the far banks of the water, shall be unsuitable.

1. Exceptions
The buffer zone may be eliminated or reduced in size where the surface management agency determines that it is not necessary to protect the National Resource Waters.

2. Exemptions
This criterion does not apply to lands to which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

S. Criterion Number 19
Federal lands identified by the surface management agency, in consultation with the State in which they are located, as alluvial valley floors according to the definition in 3400.0–5(a) of this title, the standards in 30 CFR Part 822, the final alluvial valley floor guidelines of the Office of Surface Mining Reclamation and Enforcement when published, and approved State programs under the Surface Mining Control and Reclamation Act of 1977, where mining would interrupt, discontinue, or preclude farming, shall be considered unsuitable. Additionally, when mining Federal land outside an alluvial valley floor would materially damage the quantity or quality of water in surface or underground water systems that would supply alluvial valley floors, the land shall be considered unsuitable.

1. Exemptions
This criterion does not apply to surface coal mining operations which produced coal in commercial quantities in the year preceding August 3, 1977, or which had obtained a permit to conduct surface coal mining operations.

T. Criterion Number 20
Federal lands in a State to which is applicable a criterion (1) adopted by that State, and (2) adopted by rule making by the Secretary, shall be considered unsuitable.

1. Exceptions
A lease may be issued when:
(a) Such criterion is adopted by the Secretary less than 6 months prior to the publication of the draft comprehensive land use plan or land use analysis, plan or supplement to a comprehensive land use plan, for the area in which such land is included, or
(b) After consultation with the State, the surface management agency determines that all or certain stipulated methods of coal mining will not adversely affect the value which the criterion would protect.

2. Exemptions
This criterion does not apply to lands to which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

Multiple-Use Conflicts: Screen #3

The applicable coal planning regulation for multiple-use conflicts is 43 CFR 3420.1–4e(3) which states that "multiple land use decisions shall be made which may eliminate additional coal deposits from further consideration for leasing, to protect resource values of locally important or unique nature not included in the unsuitability criteria . . ." (Office of the Federal Register, 1986, p. 536). In the RMP process a variety of guidelines were developed depending upon the characteristics of the area.

Surface Owner Consultation Process: Screen #4

As part of preparing a comprehensive land use plan, the BLM is required to consult with all surface owners meeting certain criteria (43 CFR 342.1–4(i)). If a significant number of surface owners in an "area have expressed a preference against mining those deposits by other than underground techniques that area shall be considered acceptable for further consideration only for development by underground mining techniques (Office of the Federal Register, 1986, p. 537). Typically, the process was one of mailing the appropriately identified land owners a survey.

References

Brubaker, Sterling, 1984, Issues and summary of Federal land tenure, *in* Brubaker, Sterling, ed., Rethinking the Federal lands: Washington, D.C., Resources for the Future, Inc., p. 1-31.

Hagenstein, Perry R., 1984, The Federal lands today: uses and limits, *in* Brubaker, Sterling, ed., Rethinking the Federal lands: Washington, D.C., Resources for the Future, Inc., p. 74–121.

Office of the Federal Register, 1986, Public lands: Interior, 43 CFR 1000–3999: Washington, D.C., U.S. Government Printing Office (revised October 1), 904 p.

U.S. Department of the Interior, 1983, Bureau of Land Management, BLM planning: a guide to resource management planning on the public lands: Washington, D.C., U.S. Government Printing Office.

———1985, Bureau of Land Management, Federal coal management program: final environmental impact statement supplement, v. I and II and appendices: Washington, D.C., U.S. Government Printing Office, 623 p.

APPENDIX D—COAL MINING COSTS MODULE

The Dynamic Coal Allocation Model (DCAM) uses an engineering process model of coal mining operations called the Resource Allocation and Mine Costing Model (RAMC), developed by the U.S. Department of Energy. Because RAMC documentation exists (U.S. Department of Energy, 1982, 1983a, 1983b) this appendix emphasizes data linkage and modifications made to the RAMC system for application in DCAM.

RAMC's purpose is to estimate initial and replacement capital investment costs and mine operating costs for different mine types (surface or underground), mining methods (for example, shaft/slope versus drift), geologic settings, and mine size. The costs are estimated using equations developed for five model surface mines and for four model underground mines. Certain geologic characteristics, including total regional tonnage, overburden ratios for surface mines, and seam depths and thicknesses for underground mines, influence mining costs. Mine size is another important determinant of cost due to economies of scale associated with large operations. In western supply regions, where economies of scale for large surface mines can be achieved, ranges of values in data categories, such as regional tonnage, mine size, and overburden ratios, have been altered from the original RAMC data base. All regional distributions of mine sizes are estimated using 1985 data from the Energy Information Administration (EIA) form 7A (U.S. Department of Energy, 1986). Coal production data by mine size are distributed and blocked into quartiles (equal to 25 percent of total regional tonnage). Each quartile's average mine size becomes the representative mine size for each block of coal tonnage.

Overburden ratios are determined using National Coal Resources Data System (NCRDS) data for coal bed thickness and depth (see Appendix B). Table D1 lists the estimated distributions of overburden ratios for western coal supply regions.

Using the Minable Coal Resource Base Module's regional tonnage estimates (table B4), RAMC allocates tonnages available to be produced in surface and underground mines of different sizes. To determine annual supply, four steps are followed to estimate what each supply region can produce:

1. The initial resource base is reduced by an engineering factor to account for inaccessible resources inherent in the extraction process.
2. The remainder is allocated to each mine size using a mine size distribution.
3. The amount of coal produced annually in each mine is set at the mine size adjusted for the percent of coal recoverable by mining method.
4. Total potential production or supply for a particular mine size is calculated by multiplying mine production (over the minelife) by the number of mines that can be supported by total resources allotted at that mine size.

These steps illustrate why the tonnage available to the market (or deliverable coal tonnage) is different from the total minable coal resource base tonnage (see comparisons in table D2). Overall, deliverable tonnage is 57 percent of the minable coal resource base estimates.

Differences in coal accessibility and recoverability vary among regions. The accessibility/recovery factors for underground resources are low compared to the same factors for surface resources. Therefore, supply regions where underground resources dominate will have a low overall recovery proportion, and regions where surface resources dominate will have a high overall recovery proportion. Examples of the former are supply region 9 (Pikeville, Ky.) and supply region 21 (Charleston, W. Va.). Examples of the latter are supply region 95 (Powder River basin, Montana) and supply region 96 (Powder River basin, Wyoming).

The purpose of table D2 is to tally, by supply region, deliverable coal tonnage as used in this analysis. The estimates provide a point of comparison with other estimates, such as the U.S. Department of Energy's Demonstrated Reserve Base (DRB) estimates.

A financial calculation for each mine size is based on capital and operating costs, taxes, capital depreciation, and other charges, such as black lung taxes. Table D3 shows RAMC equations for estimating initial capital costs, deferred capital costs, and annual operating costs. A minimum selling price that returns sufficient revenue to cover all costs and provides a specified real rate of return on investment is calculated. The selling price and tonnage constitute a tonnage-cost or tonnage-price step on a regional resource cost schedule.

The number of tonnage-cost combinations over all supply regions initially generated by RAMC exceeds the 400 to 500 supply steps desired to achieve a workable level of supply detail. For practical application, tonnage-cost estimates by supply region (and within supply region by sulfur content) are pooled across surface and underground mines; the pooled costs are distributed; and average costs are calculated for the first two quartiles and the top half of the cost distribution. Thus, a supply region with three sulfur categories is represented by a tonnage-cost schedule with nine steps—the three sulfur levels paired with three cost levels, and so on. Each step shows a total mining cost versus tonnage (from surface and underground operations) at a specified sulfur and Btu content level. Table D4 provides regional tonnage-cost schedules.

References

U.S. Department of Energy, 1982, Energy Information Administration, Documentation of the Resource Allocation and Mine Costing (RAMC) model: Washington, D.C., DOE/NBB-0020, 160 p.

———1983a, Energy Information Administration, RAMC surface mining cost equations development: Washington, D.C., DOE/EIA-0432, 163 p.

———1983b, Energy Information Administration, RAMC underground mining cost equations development: Washington, D.C., DOE/EIA-0433, 285 p.

———1986, Energy Information Administration, Coal production 1985: Washington, D.C., U.S. Government Printing Office, appendix E, p. 125–128.

APPENDIX E—COAL SO_x REMOVAL AND SCRUBBING COSTS MODULE

Sulfur dioxide (SO_x) scrubbing expense is part of the effective cost of using a specific type of coal, so SO_x scrubbing costs are included on the supply side of the Dynamic Coal Allocation Model (DCAM) to facilitate the search for the lowest delivered coal cost in the Market Simulation Model (MSM). Each step on the regional coal tonnage-cost schedule is a potential block of coal that can be mined and scrubbed to meet coal demands subject to various SO_x discharge and scrubbing regulations. SO_x scrubbing requirements and costs vary according to Federal and State regulations (summarized in table E1). Electric generating plants and industrial plants using coal fall into three classes to correspond with Federal and State SO_x discharge regulations.

1. The first coal utilization class includes (i) electric utility boilers with construction start-up dates before August 1971, (ii) small industrial boilers (heat input not more than 25,000 tons of coal containing 24 million Btu per ton annually), and (iii) large industrial boilers (heat input greater than 25,000 tons annually) on-line before 1986. Boilers in these three categories must meet State Implementation Plan (SIP) limits, which are set to achieve national ambient air quality standards. In principle, the SIP standards can be met by burning low-sulfur coal, scrubbing SO_x from stack gases, or combining low-sulfur coal with coals that require scrubbing. Currently, only a few SIP boilers have scrubbers (U.S. Department of Energy, 1986), and scrubber retrofit is costly (Energy Ventures Analysis, Inc., 1986). Moreover, low-sulfur coal supplies are large enough to allow SIP standards to be met for 45 years. Therefore, this analysis does not provide SO_x scrubbing options for these SIP demands.
2. The second coal utilization class includes (i) electric utility boilers with construction start-up dates after August 1971 and before October 1978 and (ii) large industrial boilers (heat input more than 25,000 tons of coal containing 24 million Btu per ton annually) on-line after 1985. The Federal new source performance standards (NSPS) limit discharges from these two types of coal users to 1.2 lb of SO_x per million Btu heat input. Options to meet NSPS standards include burning low-sulfur coal, scrubbing, or using a combination of both. The Dynamic Coal Allocation Model (DCAM) estimates costs for two levels of scrubbing: coal scrubbed at 70 percent SO_x removal level or higher to meet 0.6 lb of SO_x per million Btu (low scrubbing) and, alternatively, coal scrubbed at a 90 percent SO_x removal level to meet 1.2 lb of SO_x per million Btu (high scrubbing).
3. The third coal utilization class includes electric utility boilers with construction start-up dates after October 1978. Under the revised new source performance standards (RNSPS), boilers in this class must scrub at least 70 percent of the SO_x from stack gases. The discharge standard is 0.6 lb of SO_x per million Btu if stack gas scrubbing is less than 90 percent. At a scrubber removal efficiency of 90 percent or greater, the discharge standard is 1.2 lb of SO_x per million Btu heat input.

NSPS and RNSPS scrubbing costs are estimated using an engineering process model of a wet limestone SO_x scrubbing process installed in a 500 MW power plant (Pedco Environmental, Inc., 1979). Four additive cost categories comprise the total scrubbing cost: capital equipment costs—including costs of a sludge pond, operating and maintenance costs, penalty costs for generating capacity downgrade (primarily due to pressure loss across scrubber), and penalty costs for energy the scrubber used.

The engineering process model (Pedco Environmental, Inc., 1979) calculates scrubbing cost as a function of coal type, SO_x removal level, and flue gas flow rate through the scrubbing unit. Table E2 provides cost factors for estimating scrubbing costs. At a given percentage rate of gas flow treated, costs increase as removal level increases (as the entries across each row in table E2 show). Likewise, as the percent of gas treated increases, costs increase at a given removal level (as the entries down each column by cost category in table E2 show). For the coal types DCAM used, costs are lowest for bituminous, intermediate for subbituminous, and highest for lignite.

Scrubbing costs, which are related closely to sulfur and Btu content, are calculated for each step of the regional coal tonnage-cost schedule. Five steps are followed:

1. The SO_x removal level is calculated to meet a specified discharge limit (0.6 or 1.2 lb of SO_x per million Btu heat input) as follows:

$$U-T$$

where

U = unscrubbed or initial sulfur level (pounds of SO_x per million Btu) and

T = the target sulfur level (pounds of SO_x per million Btu)

2. As a design factor, the percentage of gas flow through the scrubbing unit is calculated according to

$$[((U-T)/U) * 100] \div 0.9$$

The term 0.9 is an adjustment factor that assumes 10 percent of scrubber capacity will be shut off for repairs. Compared to the SO_x removal level, the design gas flow factor is more important for determining scrubbing costs. Consequently, as the target SO_x removal level drops, it is cost effective to reduce gas flow design capacity and increase the effective removal efficiency to meet the target discharge limit. The unit costs in table E2 reflect this favorable cost tradeoff (compare row unit costs with column unit costs).

3. Coal type is determined on the basis of Btu: coal type is bituminous if Btu exceeds 12,000 Btu per pound, coal type is subbituminous if Btu is between 12,000 and 10,500 Btu per pound, and coal type is lignite if Btu is less than 10,500 Btu per pound.
4. Unit costs are interpolated from table E2 on the basis of coal type, design gas flow factor, and SO_x removal level.
5. Capacity and energy penalties are converted from percentages to costs (mills per kilowatt hour) by multiplying the combined penalty factors (as fractions) by the cost (at 43 mills per kilowatt hour) of electricity forfeited. Then penalty costs are added to capital and operating costs and all costs increased by 4.3 percent to reflect administrative overhead.

Table E3 shows the final scrubbing cost estimates.[1]

Each step on the regional coal tonnage-cost schedule has three options for meeting an NSPS boiler demand: coal burned and unscrubbed, coal burned and scrubbed at the low level, or coal burned and scrubbed at the high level. Delivered costs for meeting NSPS demands are increased by the scrubbing costs (either zero or the amounts in table E3) according to coal step and scrubbing option.

Coal burned in RNSPS boilers must be scrubbed to meet either low or high scrubbing levels (equal to or greater than 70 percent to meet 0.6 lb of SO_x discharged per million Btu, or 90 percent SO_x removal efficiency, respectively). This analysis assumed that boiler operators minimize costs. Accordingly, the Coal SO_x Removal and Scrubbing Costs module searches for the lower cost scrubbing option between the low and high options. Only the lower scrubbing cost by coal step (as table E3 shows) is included in the delivered costs of coal that is available for combustion in RNSPS boilers.

[1]The scrubbing cost estimates developed here using the Pedco model have been compared with estimates made by Energy Ventures Analysis, Inc. (1984) using an SO_x scrubbing cost model the Tennessee Valley Authority developed. Cost estimates from the two studies are within about 5 percent of each other.

References

Energy Ventures Analysis, Inc., 1984, Updated fgd system costs: Arlington, Va. (prepared for the U.S. Environmental Protection Agency), 17 p.

———1986, Evaluation of SO_2 emissions and the fgd retrofit feasibility at the 200 top emitting generating stations: Arlington, Va. (prepared for the U.S. Environmental Protection Agency), 28 p.

Pedco Environmental, Inc., 1979, Cost analysis of lime-based flue gas desulfurization systems for new 500-MW utility boilers: Cincinnati, Ohio (prepared for the U.S. Environmental Protection Agency), 54 p.

U.S. Department of Energy, 1986, Energy Information Administration, Cost and quality of fuels for electric utility plants 1985: Washington, D.C., U.S. Government Printing Office, table 28, p. 30–34.

APPENDIX F—COAL TRANSPORTATION COSTS MODULE

Coal transportation rates are estimated for the following modes of transport: regular rail, unit train, combination rail/barge, barge, and electric transmission from mine mouth power plants (see Bernknopf, 1985, for details). Modifications made for this analysis are summarized below.

Unit train and regular rail rates were estimated using equations (table F1) and data from Bernknopf (1985). The rate forecasts were scanned for anomalies between rate and haul distance; revisions were based on recently published rates and the remaining rate forecasts from the rate equations.

A barge transport rate equation (in 1985 $/ton) was estimated as follows:

$$\text{Barge Rate} = 1.25 + \underset{(0.0005)}{0.013}\ (\text{Miles}) - \underset{(0.0036)}{0.015}\ (\text{Delay})$$

where

Miles = distance between origin and destination points along the river

Delay = transit time delay in hours (to account for waiting time at certain locks)

No. in parentheses = standard errors

$R^2 = 0.92$

No. of observations = 157

The data used to estimate the barge rate equation are from Bernknopf (1985).

The barge rate equation estimates barge-only and the barge part of rail/barge rates for about 12,000 origin-destination pairs. The study assumed that coal is transported from a mine to a loading dock, then loaded onto a barge for transport to its riverside destination. Table F2 lists the loading docks used to estimate rail/barge rates. If the loading dock is within the origin coal supply region, it is assumed that coal is transported via truck or conveyor belt from the mine onto the barge at a cost of $1.60 per ton (1985 dollars). When the loading dock is not within the origin coal supply region, coal is transported to the loading dock by unit train or regular rail, whichever costs less. Transfer costs at the loading dock are assumed to be $1.00 per ton (1985 dollars). The remaining transport cost to the destination is a barge cost. Destinations are limited to demand regions that can be reached on barge-navigable rivers.

River lock capacity limits barge transport. Lock capacity constraints are estimated using U.S. Army Corps of Engineers (1984) data. Table F3 shows lock locations and capacities. In the Market Simulation Model (MSM), barge shipments for each origin and destination follow certain river routes that loading docks and destinations determine. Along each route, as locks are encountered, the barge tonnage is tallied against the lock capacities.

An alternative to coal transport is to construct a mine mouth power plant and transmit coal, in the form of electric energy over high-voltage transmission lines, to the demand center. An electric transmission rate equation for this type of coal transport was developed from engineering concepts (Icerman, 1974):

Transmission rate (1985 $/ton) = (Btu Factor) * 8.4

where Btu Factor = (actual coal Btu per lb)/12,000.

The transmission rate equation is applied only for transport distances of 400 miles or less. Line losses and rapidly increasing marginal costs after about 400 miles effectively limit transmission distances. The rate of $8.40 per ton is a normalized rate for coal containing 12,000 Btu/lb (Btu factor = 1). For a higher Btu coal, more Btu's are transmitted per ton of coal combusted at the mine mouth power plant. In effect, transport costs per ton of coal are higher. Similarly, for a low-Btu coal, relatively fewer Btu's are transmitted; the effective transport cost per ton of coal is low compared to a high-Btu coal. The Dynamic Coal Allocation Model (DCAM) limits areas to which coal can be transported via mine mouth transmission to demand regions that overlap supply regions with nonzero transmission capacity. DCAM limits mine mouth transmission, as well as the related capacity constraint, to areas where transmission corridors existed as of 1975. For later years in the forecast period, DCAM raises transmission limits in line with the growth in electric utility coal demands over 1975 levels (table F4). Two assumptions support these procedures for modeling transmission: (1) the costs of securing rights-of-way for additional transmission corridors will be high and limit new corridors and (2) additional transmission capacity can be installed in existing corridors if economic conditions are favorable.

The Coal Transportation Costs module has very complete data sets in terms of coverage of DCAM supply and demand regions. Consequently, the module can estimate rail and rail/barge rates for over 27,000 origin-destination pairs. This amount of transport detail exceeds practical limits in the MSM. In practice, the Coal Transportation Costs module applies three procedures to reduce the number of transport rates and routes available to the MSM:

1. A procedure for mixed freight rail and unit train rates applies two screens to eliminate rates. The first screen eliminates the unit train option for any origin-destination pair where the destination's coal demand is less than 500,000 tons annually. Unit train cost economies and low rates are achieved if the dedicated rail equipment is utilized at almost full capacity and if individual train sizes and the tonnage hauled are large enough to achieve low fixed-rail system costs (in terms of costs per ton of coal hauled). A lower limit of 500,000 tons per year is in line with cost-effective capacities for unit trains. The second screen examines unit train and regular freight rail rates for every origin/

destination pair, the rate matrix retains the one with the lower rate. Since the MSM minimizes costs and since no other constraints are limiting the choice between regular rail and unit train modes, the higher costing option would never be chosen. Consequently, that option can be eliminated without affecting the simulated market solution.

2. The second procedure is based on a test run of the model made for the years 1985–1990 using the full transport rate matrix. The procedure's purpose is to eliminate unlikely high costing origin/destination pairs. Rates for each mode for each supply region to each demand region are sorted in ascending order, highlighting the rates chosen in the test solution. A margin of 25 percent to 50 percent over the highest rate chosen in the solution is used as a cutoff to eliminate irrelevant rates from the final rate matrix. For low-sulfur western coal supply regions where demand is expected to increase relatively rapidly, margins near 50 percent are used to determine the cutoffs. In supply regions where production is not expected to grow rapidly, such as in the high-sulfur Midwest coal fields, margins closer to 25 percent are used to determine the cutoffs.
3. The mechanical-type elimination in procedure 2 was judged to be potentially too constraining for certain supply regions. Two classes of "problem" supply regions were identified by examining preliminary DCAM solutions. The first class is the group of supply regions that serve large regional markets. Examples are supply regions 8, 9, and 21 (low-sulfur coal fields in Virginia, Kentucky, and West Virginia), which ship coal to a large number of demand regions east of the Mississippi River, including the Northeast and Florida. In the West, examples are supply regions 95 and 96 (the Powder River basin areas of Montana and Wyoming), which provide low-sulfur coal to markets in the Midwest and Southwest.

The second problem class is the group of supply regions that ship coal to meet metallurgic and export demands. Available coal for these markets is in relatively short supply. These two classes of supply regions figure prominently in the simulated market solution. Therefore, special attention was focused on the rate matrix for these regions and adjustments made, including adding back specific transport rates for certain origin/destination pairs that procedure 2 had eliminated, to avoid artificial constraints to the simulated market solution.

The final sets of coal transport rates DCAM used are provided in table F5 (unit train rates), table F6 (regular rail rates), table F7 (barge and rail/barge rates), and table F8 (mine mouth transmission rates).

References

Bernknopf, Richard L., 1985, Domestic coal distribution: an interregional programming model for the U.S. coal industry: Greenwich, Conn., JAI Press, 230 p.

Icerman, L., 1974, Relative costs of energy transmission for hydrology, natural gas and electricity: Energy Sources, v. 1, p. 444.

U.S. Army Corps of Engineers, 1984, Low use capacity, data provided by H. Olson, Engineer Institute for Water Resources, Ft. Belvoir, Va.

APPENDIX G—COAL SUPPLY MODULE

The Market Simulation Model (MSM) considers all supply possibilities available for meeting coal demands and chooses the set that minimizes the present value of mining, sulfur dioxide (SO_x) scrubbing, and transportation costs. The Coal Supply module provides the array of coal supply possibilities in terms of costs and the constraints related to tonnages, SO_x discharges, and transport capacities. The data the Coal Supply module determines are coefficients that are passed to the MSM.

The determination of supply possibilities is different for each of the following five coal supply categories:

1. coal shipped to boilers under State Implementation Plan (SIP) SO_x regulations
2. coal shipped to boilers under Federal new source performance standards (NSPS)
3. coal shipped to boilers under Federal revised new source performance standards (RNSPS)
4. coal shipped to meet metallurgic and export demands
5. coal shipped to meet coal gasification and liquefaction plant (synfuel) demands

The Coal Supply module calculates three constraint coefficients and one cost coefficient for input into the MSM for every potential coal shipment to boilers under SIP standards (see fig. G1). The coefficients carry six subscripts:

s = 1,...,S = the step on the regional coal tonnage-cost schedule
i = 1,...,I = supply region (origin)
j = 1,...,J = demand region (destination)
k = 1,...,K = type of demand
l = 1,...,L = transport mode
t = 1,...,T = year for shipment

The sulfur in the coal consumed cannot exceed that required by the demand region's SIP standard or no potential for a shipment exists and no coefficients are calculated. Likewise, if routes and rates for any transport mode are unavailable or if a particular demand region has no SIP demand, there is no potential for a shipment and no coefficients are calculated.

Another important constraint in the Dynamic Coal Allocation Model (DCAM) for coal shipments to SIP boilers is recognizing the existence of a large fixed stock of boiler equipment with rigid coal requirements. SIP coal shipments go to boilers constructed prior to 1971. Much of

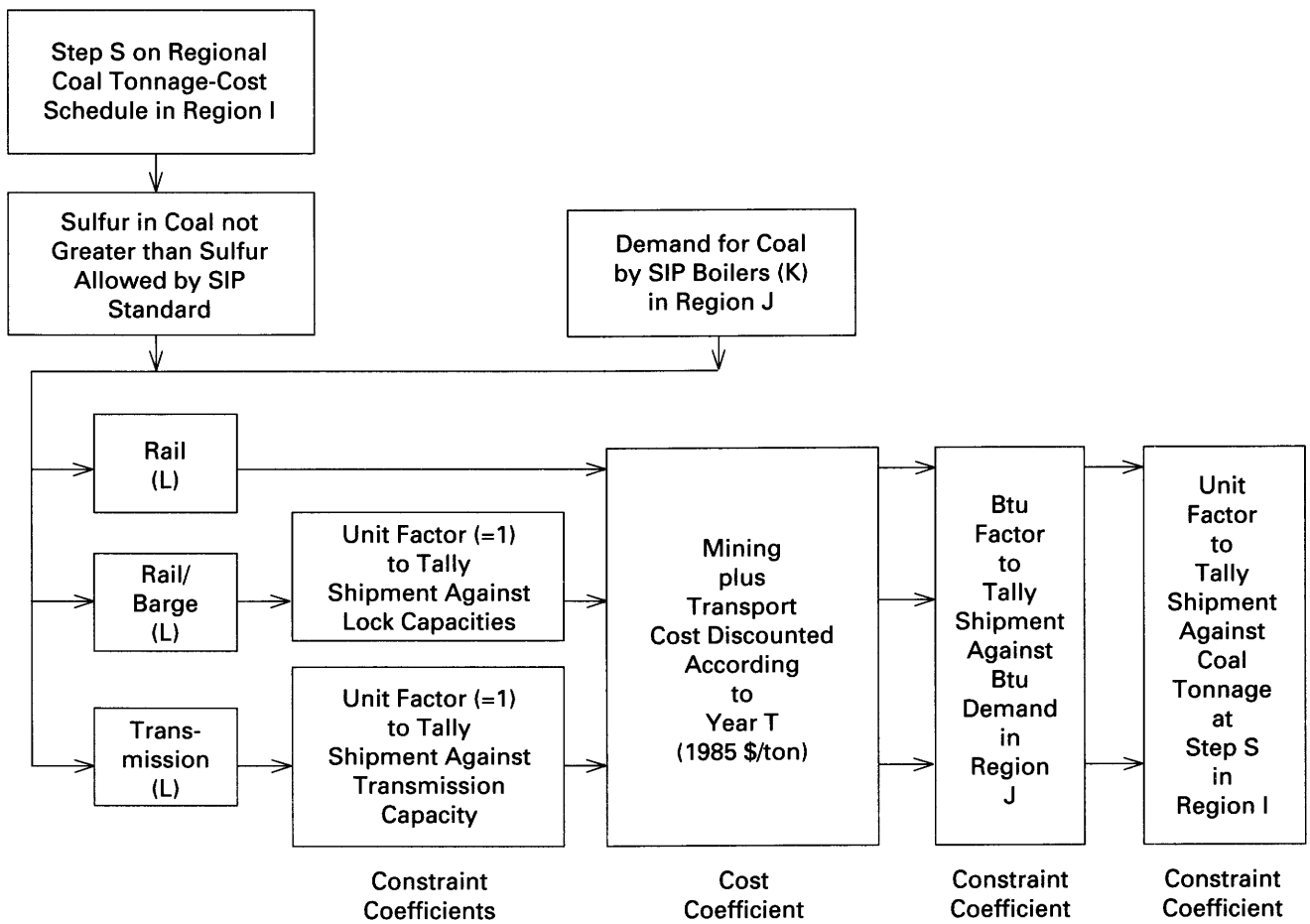

Figure G1. Constraint and cost coefficients, coal shipments to meet SIP demands.

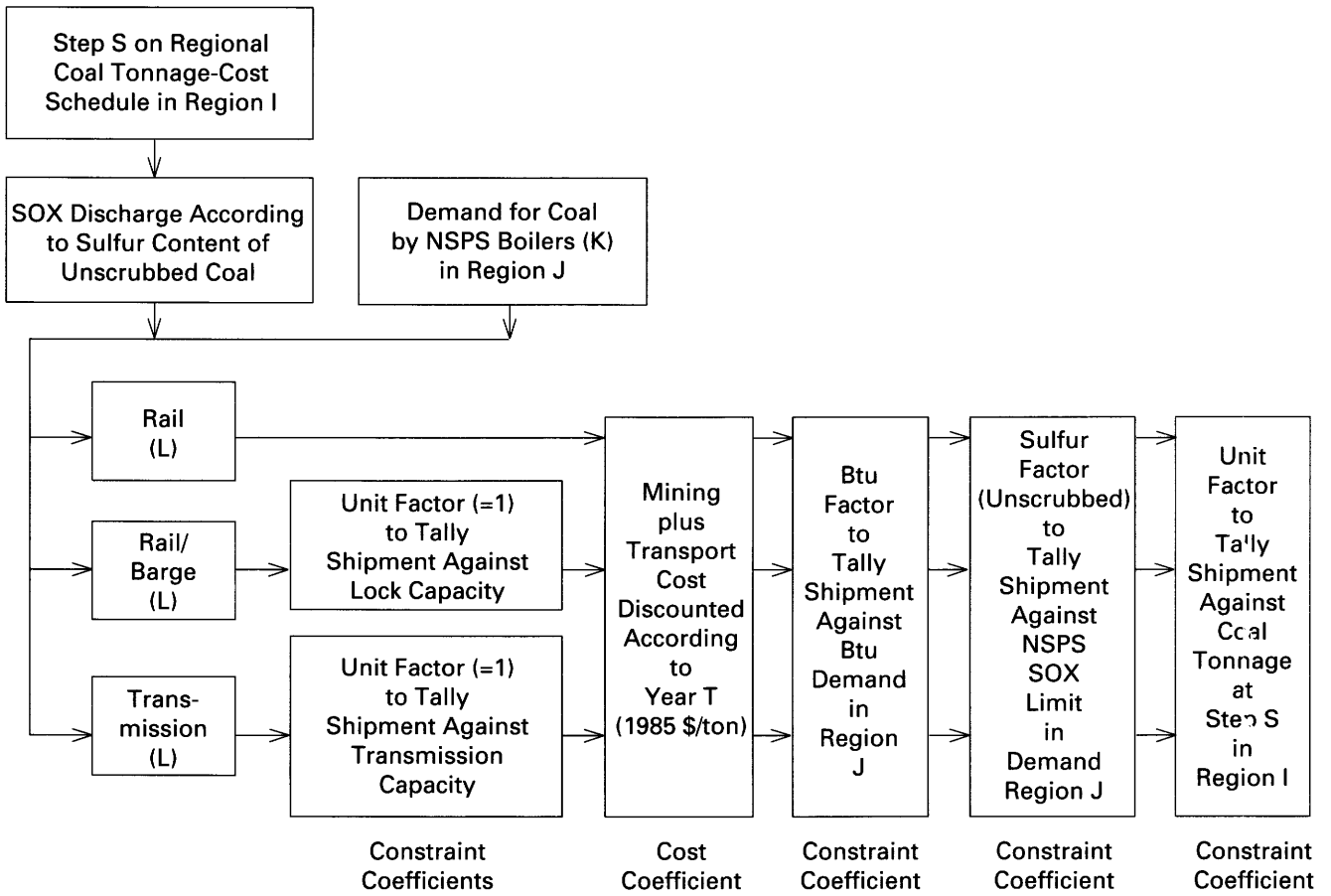

Figure G2. Constraint and cost coefficients, coal shipments to meet NSPS demands with unscrubbed coal.

the coal is under intermediate- or long-term contract. The receiving boilers are designed for coal with certain characteristics that allow efficient boiler operation. In DCAM, these constraints on SIP coal shipments are incorporated by allowing only certain regions to be potential suppliers for SIP coal demands.

The fixed SIP supply regions were determined as follows:

1. An inventory was compiled of SIP and other-than-SIP boiler capacity for electric utility plants in 1985 using data from the U.S. Department of Energy (1986a) and E.H. Pechan Associates (1985).
2. Coal shipments to electric utilities in 1985 by State and county of origin to specific power plants were taken from Federal Energy Information Administration (EIA) form 423 data (U.S. Department of Energy, 1986b).
3. Most electric utility plants are equipped with SIP boilers; however, some power plants had mixtures of SIP and non-SIP boilers. SIP coal shipments to these plants were calculated by applying the percentage of SIP capacity of total capacity to the 1985 total shipments the plant received.
4. The 1985 SIP actual supply regions are fixed in DCAM to be the origins for SIP coal shipments in all years. Thus, SIP shipments in future years to specific electric utility boilers (with demands adjusted for capacity utilization by the Coal Demand module—see Appendix I) are required to come from the same supply regions that provided coal in 1985.
5. Industrial boilers (in specific demand regions) under SIP regulations are assumed to receive their coal from the same supply regions as specified for electric utility boilers (in that same demand region). For any of the fixed SIP supply regions, coal from any step of the region's coal tonnage-cost schedule can meet SIP demands if the sulfur content at that step does not exceed the demand region's SIP standard.

Coal shipments to NSPS boilers are not constrained to any specific set of supply regions. All supply regions can be sources of supply as long as NSPS limits are met. In DCAM, NSPS regulations can be met by burning low-sulfur coal, by scrubbing coal at a high level, or by scrubbing coal at a low level. Accordingly, the Coal Supply module calculates cost and constraint coefficients for each of these three possible methods of meeting NSPS restrictions on SO_x discharges.

As figure G2 shows, the Coal Supply module calculates four constraint coefficients and one cost coefficient for every possible shipment of coal that could meet NSPS boiler demands. Since coal blending is allowed, there are

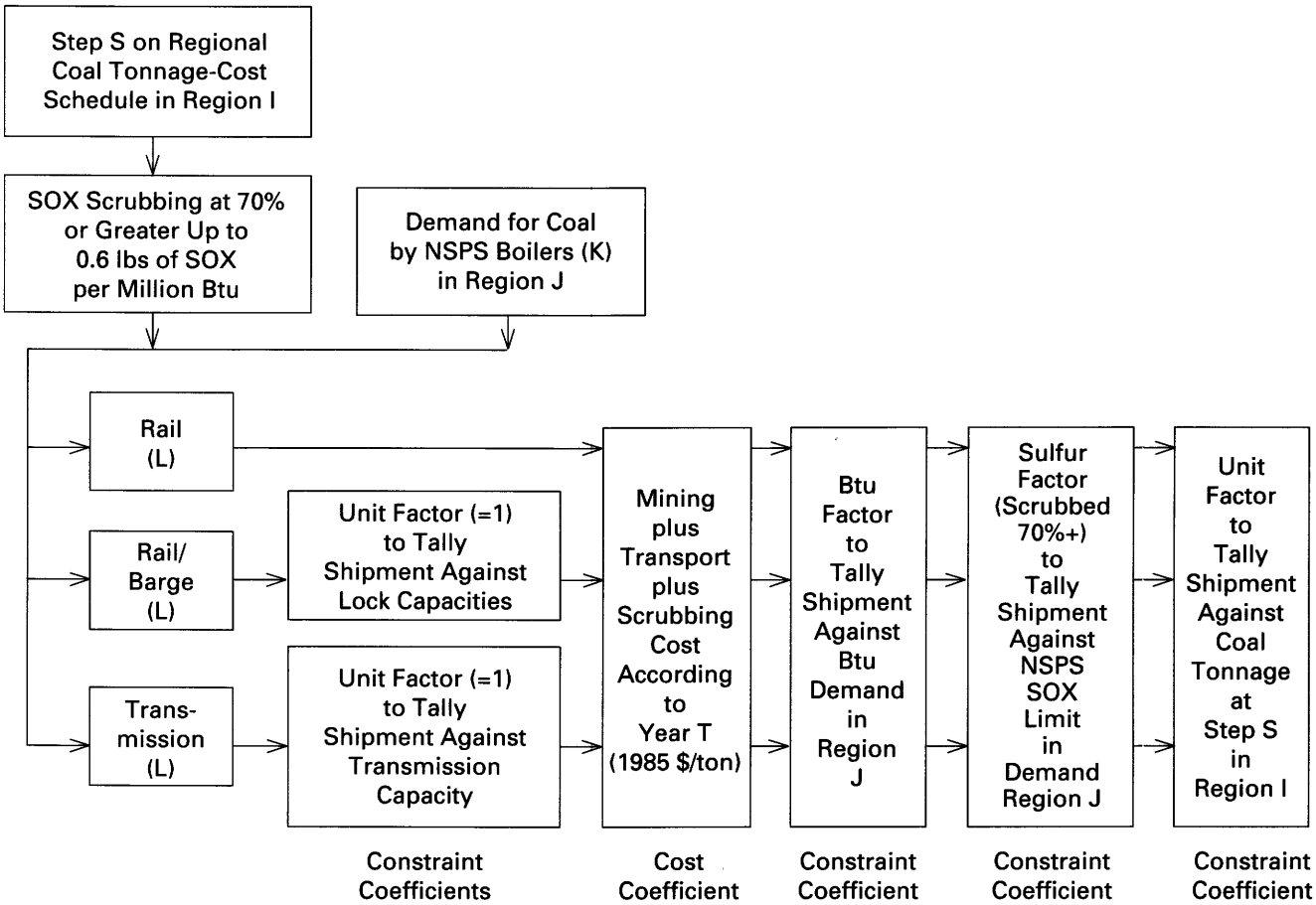

Figure G3. Constraint and cost coefficients, coal shipments to meet NSPS demands with coal scrubbed 70 percent or greater to reach 0.6 lb of SO_x per million Btu heat input.

many possibilities. Mixtures of unscrubbed and scrubbed coal can meet NSPS demands as long as the overall SO_x constraint in the demand region is not violated. Therefore, the potential for a shipment exists at every supply step for which transport routes and rates are available from the coal supply region to the NSPS demand region. Constraint and cost coefficients are included for each one of the possibilities.

There are two differences between the coefficients used to represent NSPS shipments and those used to represent SIP shipments. The first difference is related to the options available for meeting SO_x discharge limits. The NSPS shipments require sulfur coefficients to tally SO_x discharges from the coal against the demand region's overall SO_x discharge limit. NSPS shipments can come from any step of the cost schedule and originate from any supply region as long as the SO_x limits are not exceeded, unlike SIP shipments that are made to originate from certain supply regions, which satisfy SIP limits. Blending among steps is allowed for SIP coal shipments. But for every possible blend, the procedure guarantees that SIP limits will be met, eliminating the need for an explicit tally against the SIP SO_x limit. Thus, the Coal Supply module does not calculate sulfur coefficients for SIP shipments. The second difference occurs in the make up of the cost coefficients. All SIP demands are met with shipments of unscrubbed coal; scrubbing costs are absent from SIP cost coefficients. NSPS demands that require the low- or high-scrubbing options are met with scrubbed coal, and an appropriate scrubbing cost is included by the Coal Supply module in the cost coefficient.

Figures G3 and G4 show the kinds of constraint and cost coefficients made available for meeting NSPS demands with scrubbed coal. Figure G3 shows coefficients calculated for the low-scrubbing option (70 percent or greater removal efficiency up to 0.6 lb of SO_x per million Btu heat input). Scrubbing costs are included in the cost coefficients. Sulfur factors are set to meet the NSPS SO_x discharge limit. Similarly, figure G4 shows coefficients calculated for the high-scrubbing option (90 percent SO_x removal efficiency level). Like the unscrubbed NSPS shipment option, scrubbed coal shipments are allowed from any supply region for which transport routes and rates are available to demand regions with NSPS boilers.

The RNSPS-regulated coal shipments are subject to technical scrubbing requirements. As figure G5 indicates, the lower costing scrubbing option (from 70 to 90 percent scrubbing, or 90 percent scrubbing) is identified for each

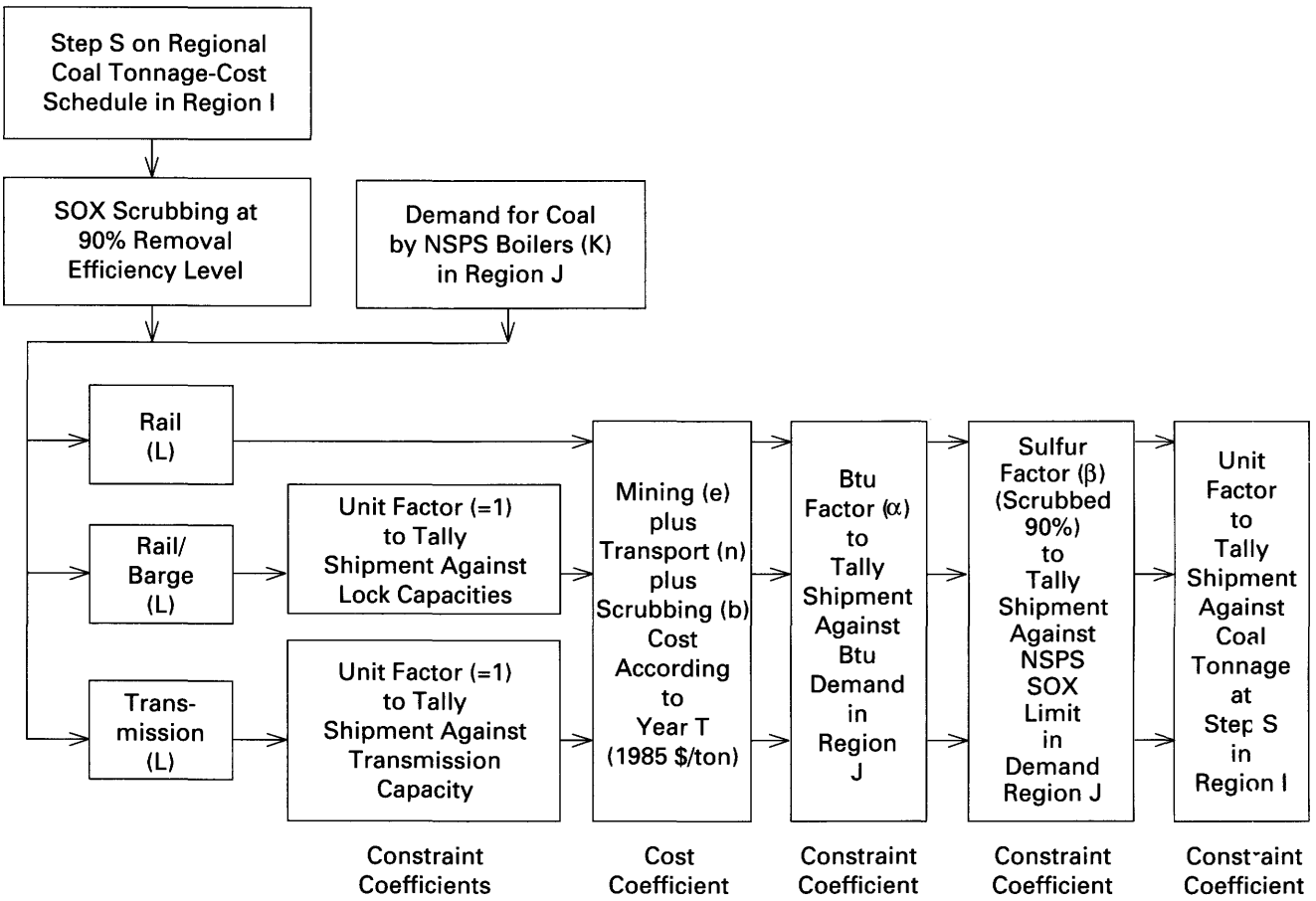

Figure G4. Constraint and cost coefficients, coal shipments to meet NSPS demands with coal scrubbed at 90 percent removal efficiency level.

potential shipment to a demand region with RNSPS demands. Since scrubbing of at least 70 percent is mandated, cost coefficients always include a scrubbing cost.

Coal shipped to meet metallurgic and export demands has special quality restrictions. Generally, coal that is attractive to the metallurgic and export markets has a low-sulfur and high-Btu content. A large amount of export coal goes to foreign metallurgic markets. Table G1 provides sulfur and Btu quality restrictions for coal shipments to metallurgic and export markets.

In the Western United States, metallurgic and export shipments are allowed only from supply regions 61 (Raton, N. Mex.), 62 (Gunnison, Colo.), 70 (Price, Utah), and 91 (McKinley County, N. Mex.). Also, coal can be utilized only from steps on the regional coal tonnage-cost schedule with sulfur content less than or equal to 1.8 percent sulfur by weight. Shipments from Eastern U.S. supply regions are required to have at least 13,000 Btu/lb and no more than 1.8 percent sulfur by weight. After the year 2030, it is assumed that resource depletion (in the United States and abroad) will allow some relaxation in coal quality for metallurgic and export markets. Accordingly, the level for Eastern U.S. and Western U.S. sulfur content is raised from 1.8 percent to 2.0 percent, and the Btu level for shipments from Eastern U.S. supply regions is relaxed to 12,000 Btu/lb.

Figure G6 outlines constraint and cost coefficients the Coal Supply module made available to the MSM for meeting metallurgic and export demands. Transport options include only rail and rail/barge; electric transmission is not feasible for coal going to metallurgic and export markets. Cost coefficients exclude scrubbing because, ordinarily, metallurgic coal is not scrubbed. In the case of exports, boiler coal made available for export is required to be of high quality. It is unlikely that low-sulfur export coal, scrubbed at the foreign demand center, could be cost competitive in export markets.

Coal shipped to meet synfuel demands is the fifth and final category of coal shipments. This type of coal has very few limits on supply possibilities. Figure G7 shows the constraint and cost coefficients the Coal Supply module made available to meet synfuel demands. Electric transmission is not feasible for synfuel demands. There are no coal quality restrictions related to sulfur or Btu content since the coal would be treated in chemical conversion processes where waste streams and conditions can be tightly controlled.

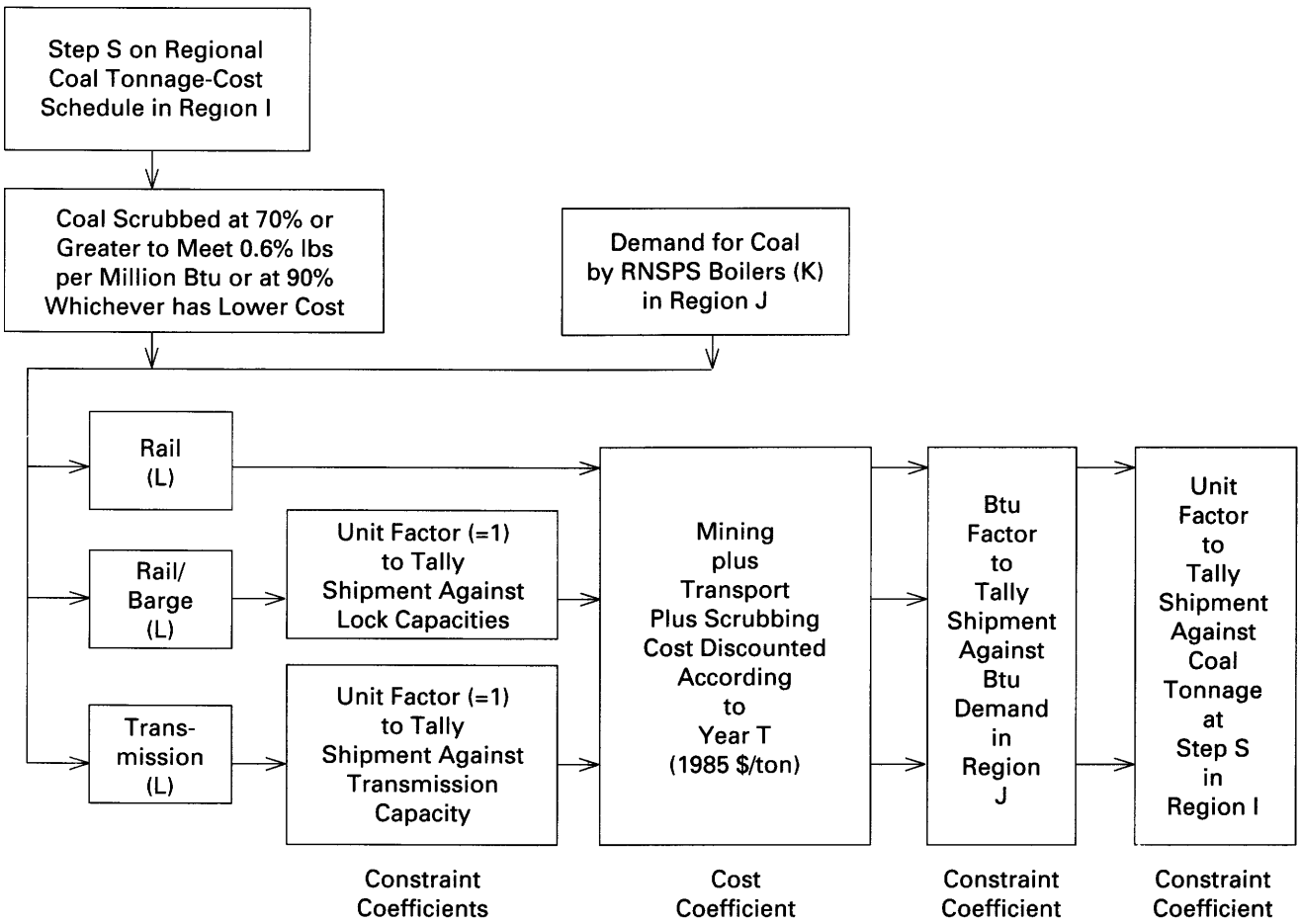

Figure G5. Constraint and cost coefficients, coal shipments to meet RNSPS demands.

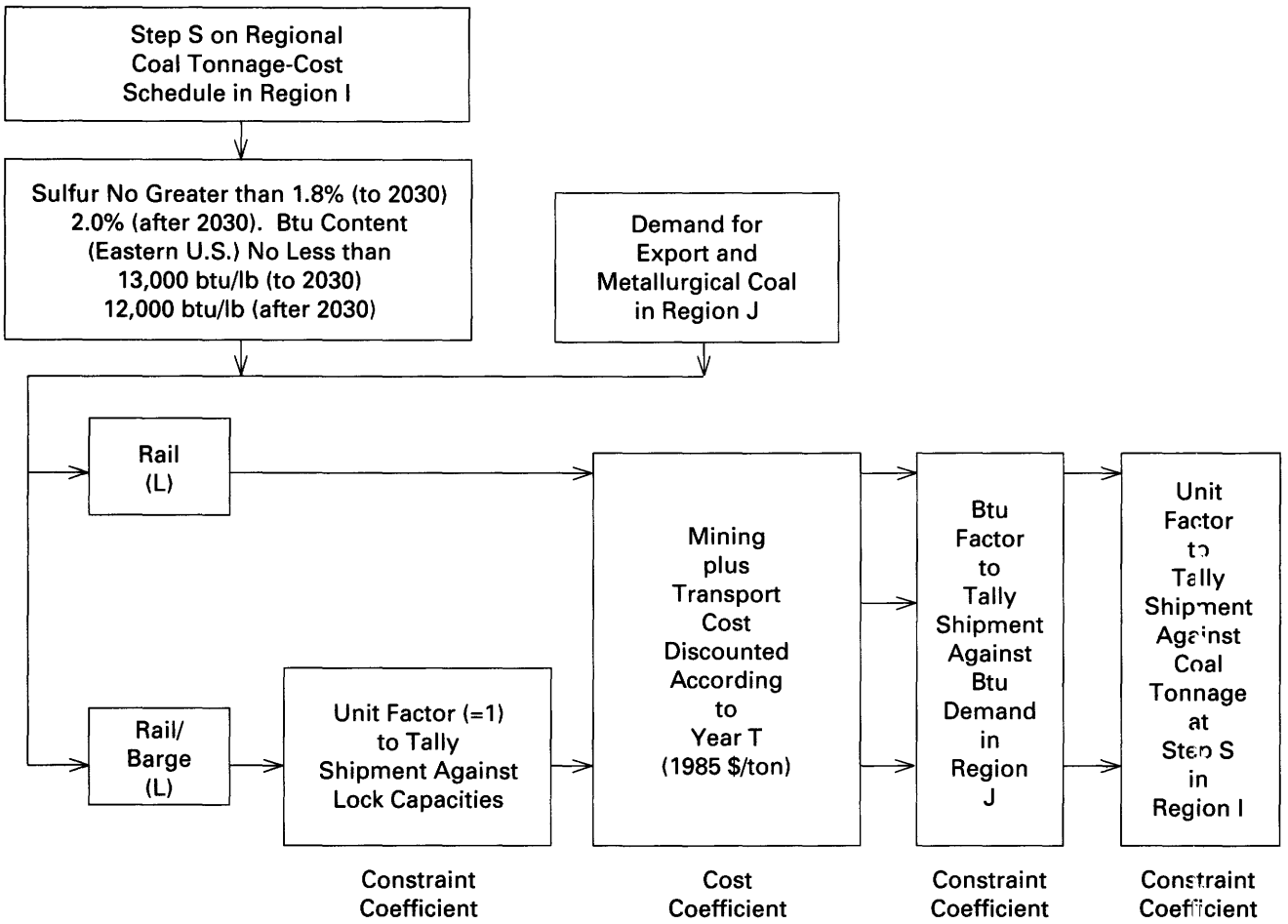

Figure G6. Constraint and cost coefficients, coal shipments to meet demands for export and metallurgic coal.

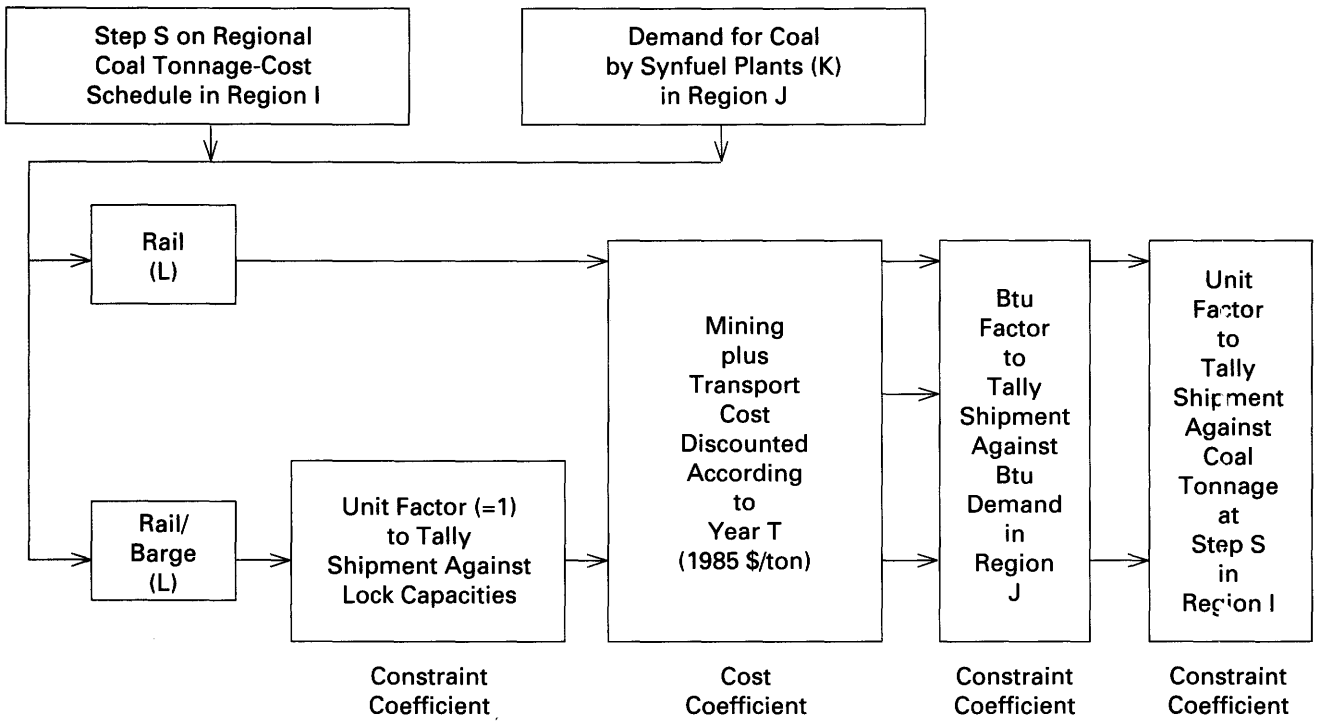

Figure G7. Constraint and cost coefficients, coal shipments to meet synfuel plant demands.

Figures G1 through G7 have outlined the coefficient sets the Coal Supply module provided. These various cost and constraint coefficients are used in the objective function and constraint inequalities in the MSM (as formulated in table A1). The study uses the coefficients identified in figure G4 (coal supply possibilities for meeting NSPS demand with a high level of scrubbing) to illustrate the linkage between the Coal Supply module and the MSM as follows:

In Figure G4		In Table A1
Mining cost per ton	=	e_{mi} in Objective Function
Transportation cost per ton	=	n_{ijl} in Objective Function
Scrubbing cost per ton	=	b_{mik} in Objective Function
Btu factor for demand constraint	=	α_i in Other Demand constraint
Sulfur factor for SO_x discharge limit	=	β_{mik} in constraint for SO_x Discharge NSPS Demands
Unit factor for supply	=	1 in Supply constraint
Unit factor for river locks	=	1 in River Locks constraint
Unit factor for electric transmission constraint	=	1 in Electric Transmission constraint

If the MSM chooses a particular shipment (x_{nijklt}) to enter the solution to meet an NSPS demand, the shipment will be tallied against the objective function and the various constraints according to the coefficients the Coal Supply module provides. Similar linkage holds for coal supply possibilities when meeting the other categories of demand.

References

E.H. Pechan Associates, 1985, Final SO_2 emission limits by State, plant, and unit (prepared for the U.S. Department of Energy), 195 p.

U.S. Department of Energy, 1986a, Energy Information Administration, Electric generating plant file, data provided by A. Breuel: Washington, D.C.

———1986b, Energy Information Administration, Cost and quality of fuels for electric utility plants 1985: Washington, D.C., U.S. Government Printing Office, 212 p.

APPENDIX H—SO_x DISCHARGE LIMITS MODULE

The Dynamic Coal Allocation Model (DCAM) includes restrictions for sulfur dioxide (SO_x) discharges from coal combustion that the Federal Clean Air Act mandated. DCAM's modular design easily incorporates a variety of existing and proposed environmental policy restrictions. The SO_x Discharge Limits module calculates regional limits for meeting State Implementation Plan (SIP) standards and for meeting new source performance standards (NSPS). As Appendix G discussed, revised new source performance standards (RNSPS) mandate scrubbing technology; the technology requirement itself is the constraint. The Coal Supply module's calculations of cost and constraint coefficients provide all the data needed to represent RNSPS limits in DCAM.

SIP regulations are targeted at emissions from coal combusted in electric utility boilers with construction start-up dates prior to August 1971 and to large industrial boilers (annual heat input greater than 25,000 tons of coal containing 24 million Btu/ton) on-line before 1985. SIP standards also apply to all small industrial boilers (annual heat input not more than 25,000 tons of coal containing 24 million Btu/ton). These boilers are required to meet standards established through State Implementation Plans, which were designed to achieve national ambient air quality standards for sulfur dioxide. SIP standards are applied to specific boilers; the standards vary by region according to boiler location. The Coal Demand module (see Appendix I) groups coal shipments to SIP boilers according to specific pairs of DCAM supply and demand regions for the SIP boiler category because each shipment has a boiler-specific SIP discharge standard (in units of allowable lbs of SO_x discharge per million Btu). Boiler-specific SIP standards for electric utility boilers are taken from E.H. Pechan Associates (1985). The SIP standard is applied at the demand center where the coal is utilized. To obtain an aggregate SIP standard, the boiler SIP standards are weight averaged by the tonnage required to be shipped from specific supply regions. Individual boiler SIP standards stay constant but weight-averaged aggregated SIP standards change over time because a boiler's age decreases its capacity utilization (as described in the Coal Demand module, Appendix I). Consequently, coal demands for individual boilers (for a specific pair of DCAM supply and demand regions) can change at different rates. These rates, applied to fixed boiler SIP standards, provide the different SIP standards by year as shown in table H1. Coal can come from any step on the regional coal tonnage-cost schedule for any supply-demand region pair, as long as the indicated SIP standard is not exceeded.

The data in table H1 (middle year in each time period) indicate that SIP standards were in effect in the year 1985 for shipments to many demand regions. In 1985, coal shipments to SIP boilers constituted about 48 percent of total coal demands. However, by 2025, almost all electric utility SIP boilers will be retired. Most of the remaining SIP standards shown in table H1 for the year 2025 apply to industrial boiler coal demands.

The SO_x Discharge Limits module also totals regional limits for coal burned in NSPS boilers. NSPS discharge limits by DCAM demand region are calculated by multiplying the discharge standard by the NSPS boiler demand for coal (in millions of Btu's). Table H2 shows the total restrictions on SO_x discharges for selected years. The Market Simulation Model (MSM) explicitly constrains the NSPS SO_x discharge limits.

As explained previously, the MSM's choices for meeting the NSPS discharge constraints include burning unscrubbed coal, coal scrubbed at the 70 percent efficiency level or up to 0.6 lb of SO_x per million Btu, or coal scrubbed at a 90 percent scrubber removal efficiency level. The MSM may choose several of these options to meet a specific regional demand. The tonnages (for the selected options) are multiplied by appropriate sulfur factors (sulfur content adjusted for SO_x scrubbing) and the results added to obtain the demand center's total SO_x discharge. The total discharge cannot exceed the limits shown in table H2.

Reference

E.H. Pechan Associates, 1985, Final SO_2 emission limits by State, plant, and unit (prepared for the U.S. Department of Energy), 195 p.

APPENDIX I—COAL DEMAND MODULE

Various methods are used to forecast the several categories of coal demand from 1985 to 2065. The opportunity cost analysis for the base, restricted, and unsuitability cases for 1985 (unsuitability criteria restrictions lifted in 1985) require coal demand projections for 1985 to 2030. The other resource policy cases this report examined require demand projections for 1985 to 2065, depending on the policy scenario (recall fig. C3). This appendix first discusses the methods used to project coal demands for 1985 to 2030. Data and existing forecasts allow a rich development of these projections. The second part of this appendix discusses methods for projections beyond 2030. Those projections, with one exception, are extrapolations of earlier demands. The one exception is the projection of synfuel plant coal demand, which is based on an analytic model.

Coal demand projections are made at the geographic level of EPA's air quality control regions (AQCR's) (U.S. Environmental Protection Agency, 1972). By combining 194 AQCR's as separate demand markets (shown in table I3) with 60 supply regions, the Dynamic Coal Allocation Model (DCAM) maintains a high level of regional detail. This is an important modeling feature. The U.S. coal supply is highly heterogeneous with respect to location, mining cost, and coal quality. U.S. coal demands, also, are heterogeneous in terms of location, coal quality constraints, and size.

Coal Demand Projections, 1985–2030

There are four demand categories for which the Coal Demand module makes projections for 1985–2030:

1. electrical utility boiler demands
2. industrial boiler demands
3. export demands
4. metallurgic demands

Federal and State sulfur dioxide (SO_x) regulations place constraints on coal quality and require a certain level of SO_x scrubbing. Consequently, electric utility and industrial boiler demand projections must be broken out according to SO_x regulations to link with the Coal Supply module's coefficients. Similarly, export and metallurgic coal demand projections need a link to the Coal Supply module's cost and constraint coefficients. Figure I1 shows the specific demand categories and the linkage with the Coal Supply module. As figure I1 shows, eight demand categories require the Coal Demand module forecasts. However, because specific demand projection methods are applied to more than one coal demand category, the eight categories in figure I1 can be collapsed (for presentation purposes) into the following four categories:

1. State Implementation Plan (SIP) electric utility boiler demands
2. Federal new source performance standards and revised new source performance standards (NSPS and RNSPS) electric utility boiler demands
3. SIP and NSPS industrial boiler demands
4. metallurgic and export coal demands

Each projection method is discussed below. Demand forecasts for each category are presented later in the appendix.

SIP Electric Utility Boiler Demands

Electric utility coal demands under SIP regulations are projected on a boiler or plant basis. Boiler-specific demands are aggregated regionally for specific supply origins. The supply origins and demand destinations pattern replicates the actual 1985 shipping patterns.

Figure I2 outlines the specific steps the Coal Demand module uses to project SIP electric utility coal demands. The procedure starts with a 1985 inventory of electric utility units. Each unit or boiler is identified by geographic location, plant code, generating capacity, on-line year, applicable SO_x regulation (SIP, NSPS, or RNSPS), and SIP limit, when appropriate (U.S. Department of Energy, 1986a, and E.H. Pechan Associates, 1985). U.S. Department of Energy (DOE) form 423 provides data on 1985 coal deliveries to electric power plants by State-county origins (U.S. Department of Energy, 1986b). Boiler coal receipts are determined by allocating total plant coal delivery using each boiler's share of 1985 plant capacity. Boiler and plant capacities are calculated using a capacity utilization schedule (table I1), while form 423 provides the boiler on-line year data.

Boiler coal requirements are forecast by applying a time-related boiler capacity factor to the 1985 deliveries. The boiler capacity factor is the projected boiler utilization rate for any year after 1985 divided by the 1985 utilization rate (the capacity utilization schedule in table I1 having determined both rates). The boiler-specific demands are then aggregated to obtain SIP electric utility demands for specific supply-origin demand-destination pairs. The projected demands for individual boilers are tied to the 1985 State-county supply origins. Consequently, the aggregation maintains coal quality constraints for shipments as required for the old SIP boilers. As figure I2 indicates, the projection procedure also adjusts aggregate SIP boiler limits according to the projected boiler coal demands to update the SIP SO_x limits (as discussed in Appendix H).

NSPS and RNSPS Electric Utility Boiler Demands

The forecasting procedure for electric utility coal demands for NSPS and RNSPS boilers relies on certain control totals available from DOE forecasts (discussed below). Once the control totals are achieved, the Coal

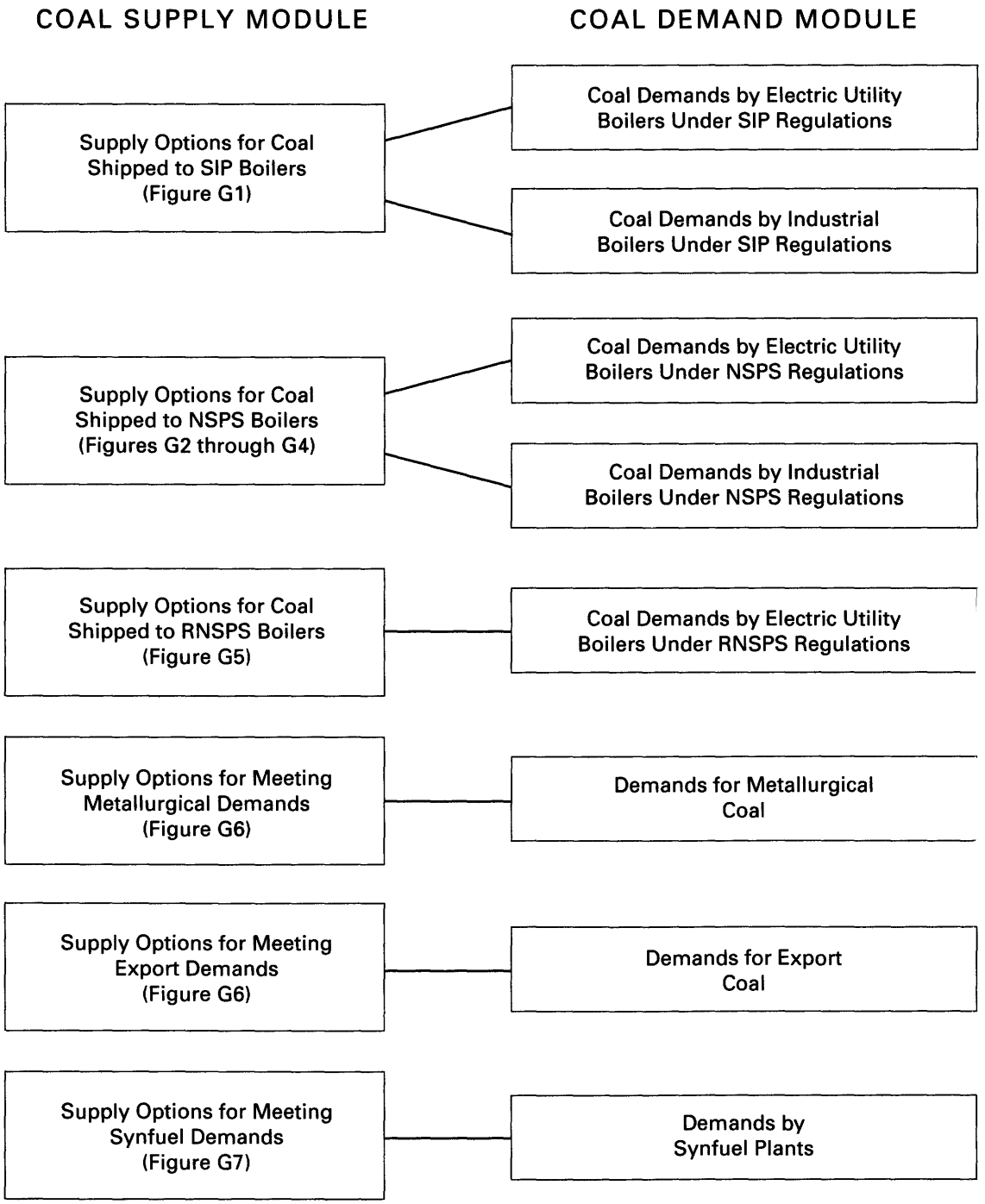

Figure I1. Categories of coal demands projected by the Coal Demand module.

Demand module uses regional shares to forecast NSPS and RNSPS coal demands at the AQCR level.

Projections of electric utility coal demands for NSPS and RNSPS boilers are constrained in the Coal Demand module as follows:

- At the Federal region (see table I2) reporting level, total utility coal demand (SIP plus NSPS plus RNSPS) is required to meet Federal region demand forecasts prepared by Argonne National Laboratory for the U.S. DOE (Argonne National Laboratory, 1986) consistent with DOE's National Energy Plan 5 (NEP5) forecasts. The Coal Demand module aggregates SIP coal demands to the Federal region level to meet this constraint. The SIP Federal region total is subtracted from the overall Federal region total to obtain a Federal region control total for the combined NSPS and RNSPS coal demands.
- Separate NSPS and RNSPS national coal demand estimates are developed from the NEP5 forecasts through a balancing procedure that employs regional shares (Mitre Corporation, 1980). Total demand for these two cate-

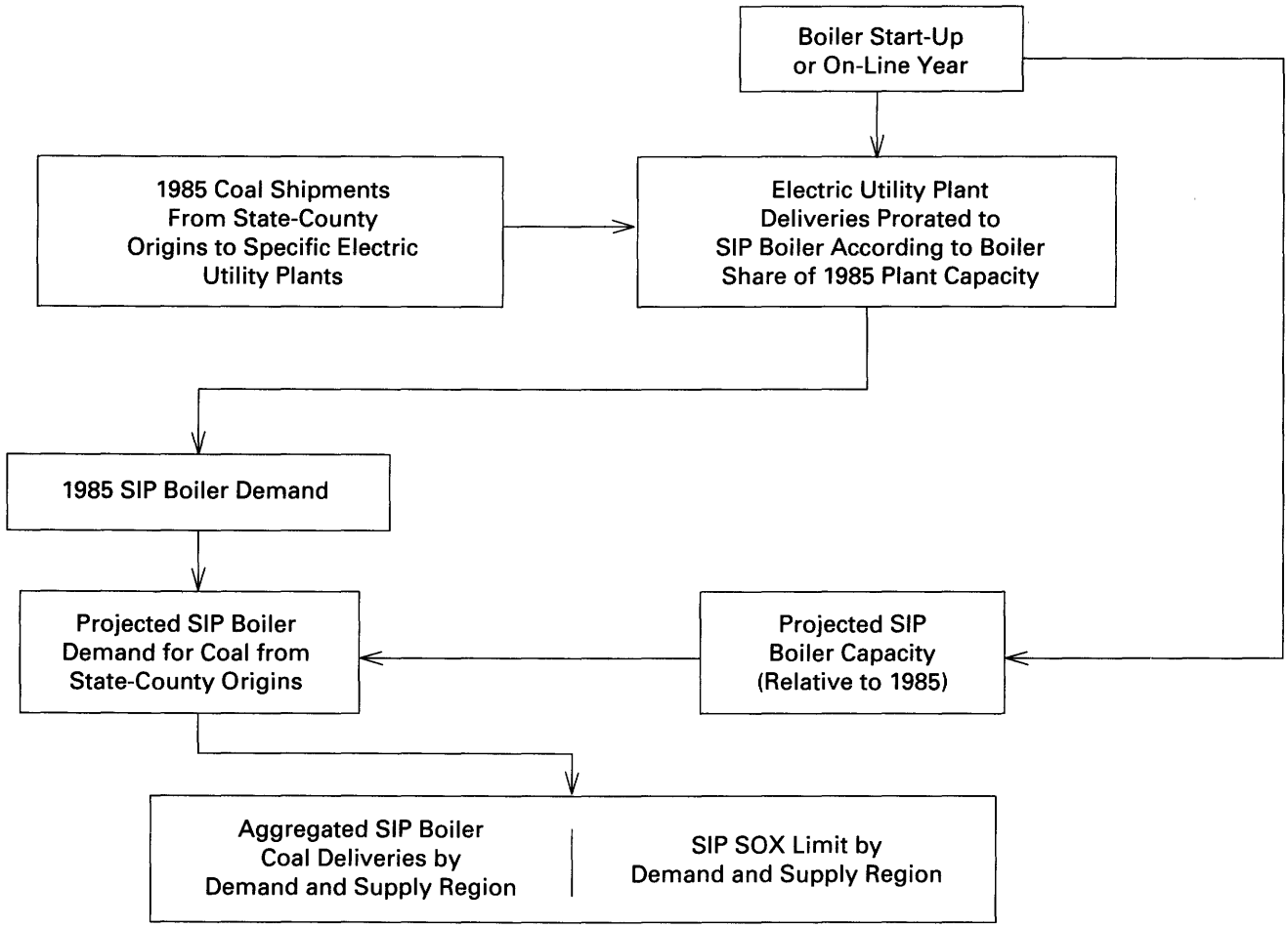

Figure 12. Procedure for projecting SIP electric utility coal demands.

gories is constrained to a reasonable limit because (1) the separate demands in each Federal region must total the Federal region control total (determined by the first procedure, above) and (2) the totals of all Federal regions (separately, in the NSPS and RNSPS categories) must equal DOE's NEP5 national control totals.

DCAM coal demands are required at the regional level (AQCR's). DOE has developed county-level allocations of electric utility fuel requirements according to SO_x control standards (Mitre Corporation, 1980, and Cowan, 1979). The allocations are based on the following inputs:

- An announced list of plants scheduled for construction through 1990, as reported by utility companies.
- A rank-ordered list of potential sites for coal-fired power plants.

The allocation procedure projects electric generation, by county, for NSPS and RNSPS plants in 1985, 1990, and 2000. These county allocations are added to obtain AQCR shares that are applied against the Federal region projections to obtain electric utility NSPS and RNSPS coal demands at the AQCR level.

Federal region and national control totals are developed from DOE projections available through 2030 (data provided by T. Williams at the U.S. Department of Energy and by Argonne National Laboratory (1986)). Consequently, the Federal region control totals and the separate Federal region projections for NSPS and RNSPS demand provide demand estimates (at the Federal regional level) for each year in the forecast to 2030. However, the allocation from Federal region to AQCR level is only year specific to the year 2000. After 2000, the Federal-region-to-AQCR-allocation for 2000 is applied. Using constant allocations keeps AQCR shares within Federal regions constant. On the other hand, the AQCR projection levels can change according to the projected Federal region demands. Since the latter are based on plant inventories, additions, and retirements (Argonne National Laboratory, 1986), the AQCR projections maintain a large degree of regional integrity in all years.

SIP and NSPS Industrial Boiler Demands

The demand forecasts for industrial boiler coal are projected using methods similar to those for electric utilities. The procedure relies on certain control totals and regional shares available from DOE studies.

Industrial coal demand projections are constrained by the Coal Demand module, as follows:

- At the Federal region level, total industrial boiler demand (SIP plus NSPS) is required to meet Federal region demand forecasts (from Argonne National Laboratory, 1986). The Argonne forecasts are consistent with the DOE's NEP5 national forecasts. The Coal Demand module uses procedures described in the next subsection, Metallurgic and Export Coal Demands, to project metallurgic coal demands. These metallurgic demands (at the Federal region level) are subtracted from Argonne Federal region totals (which include metallurgic and industrial boiler demands). This procedure provides Federal region control totals for the combined SIP and NSPS industrial boiler demands.
- The combined SIP and NSPS demands are split into separate estimates at the Federal region level. To do this, the Coal Demand module uses separate SIP and NSPS national control totals developed from DOE's NEP5 national forecast. A balancing procedure, similar to that used for the electric utility allocations, provides SIP and NSPS demand projections at the Federal region level.

Industrial coal demands are required at the regional level of AQCR's. DOE has developed a procedure to allocate industrial coal demands to the county level (Mitre, 1980, and Cowan, 1979). The allocations are based on the age, size, and location of boilers, as well as the SO_x regulations for industrial boilers. Data used by the allocation procedure include:

- Base-year and projected level of industrial activity by State as forecast by OBERS (Office of Business and Economic Research) (U.S. Water Resources Council, 1974).
- Size, age, and location of existing large facilities from the Major Fuel Burning Installation File (Federal Energy Administration, 1974).

The procedure's county allocations are added to obtain AQCR shares that, in turn, are applied against the Federal region projections to obtain industrial coal demands at the AQCR level. Data are available to project shares for 1985 to 2000.

In the industrial category, regional shares are extrapolated by applying the AQCR shares for 2000 and all years after 2000. But because distinct Federal region projections are made to the year 2030, the AQCR industrial coal demand projections do reflect region-specific variation over all years.

Metallurgic and Export Coal Demands

National projections of U.S. coal exports and metallurgic coal demands are taken from DOE studies (U.S. Department of Energy, 1985, 1986c). The demand destination for coal exports is the U.S. shipping port. Assignment to AQCR's (as DCAM requires) is made using shares developed from 1985 data (U.S. Department of Energy, 1986d) for exports and U.S. Department of Energy (1986e) for metallurgic coal. The 1985 shares are used to project AQCR in all years. Using a constant share procedure to the year 2000 is a reasonable approach. Shipping ports and coking facilities are limited in number and fixed in the short run. Beyond 2000, the procedure is less reliable but no better data are available for projecting regional allocations.

Coal Demand Projections, 2030–2065

Coal demand projections for 2030 to 2065 are required for analyzing long-term land-use policies related to relaxing or extending Bureau of Land Management's (BLM's) unsuitability criteria restrictions. The projection methodology is designed in accordance with basic principles; only the most direct procedures are warranted. The Coal Demand module performs two tasks to forecast coal demands for 2030 to 2065. The first task is to extrapolate the coal demand projections developed for 1985 to 2030 to the years 2045, 2060, and 2075, as follows:

Year	Electrical utility and industrial		Electrical utility RNSPS coal	Export coal	Metallurgic coal	Total coal
	SIP coal	NSPS coal				
1985	437	212	37	101	40	827
1990	400	262	147	96	40	945
1995	327	273	322	104	37	1063
2000	252	283	506	108	41	1190
2005	185	296	727	138	46	1392
2010	125	310	922	146	48	1551
2015	87	287	1064	154	51	1643
2020	50	269	1233	163	54	1769
2025	19	244	1420	172	57	1912
2030	1	230	1563	180	60	2033
2045	0	220	1778	180	60	2238
2060	0	220	1881	180	60	2341
2075	0	220	1933	180	60	2393

(Estimates are in millions of tons of coal containing 24 million Btu per ton.)

For this analysis, the extrapolations are based on the following assumptions or conditions:

- Export and metallurgic demands remain constant at their 2030 levels.
- All SIP boilers (assuming a 50-year life) are retired by 2030. Therefore, SIP demands extrapolated beyond 2030 are set at zero.
- As the DOE studies project, utilization for NSPS boilers peaks in 2010 after a steady build-up of industrial and electric utility boiler capacity. By 2035, almost all electric utility NSPS boilers are retired, assuming that 1985 is the latest on-line year and that boilers have a 50-year life. After 2035, industrial boilers account for all of the NSPS coal demand. Coal utilization is assumed to remain about constant as the industrial boiler stock is replaced.
- The extrapolation of RNSPS coal demands is based on the assumption that the coal-fired electric utility industry reaches constant production. Events consistent with this assumption include improvements in generating efficiency, a slow demand growth stemming from a low population growth, greater reliance on nuclear-generated power, and sufficient time for coal-fired generating capital stocks to fully depreciate. Demand is allowed to increase at diminishing rates so that there is a smooth transition by the 2060–2075 period to a condition of near-zero growth. Because demand categories other than RNSPS coal exhibit constant demands in the extrapolation period, total coal use (across all the conventional uses shown above) also reaches near-zero growth by 2075.

The second task is to forecast synfuel plant demands for coal. For this analysis, the synfuel coal demands are based on several assumptions and conditions.

- The demand for liquid hydrocarbon fuels for transportation will grow modestly. Liquid demand in 1985 was 20×10^{15} Btu (U.S. Department of Energy, 1987a). By 2075, this demand will reach a level of about 33×10^{15} Btu. The projected liquid demands assume continued improvements in automobile gas mileage, some use of electrical transportation, slow growth in automobile stocks, and some growth in the use of liquid fuels for truck and air transportation.
- World production of conventional hydrocarbon liquids will reach a maximum around the year 2030. After 2030, conventional and nonconventional sources, including conversion of coal to liquids, will meet liquid demands. By about 2075, all conventional liquids could be depleted. In the period 2030–2075, nonconventional sources will fill the supply gap to meet demands, and converted coal will produce about half of the nonconventional liquids. Coal and oil shale are the main resources available for conversion to synthetic fuels. Conversion costs are uncertain. A reasonable assumption is that coal and shale will contribute equally to synfuel supplies. Owing to relatively high demands, short supplies of conventional domestic liquids, and large supplies of convertible resources (oil shale and coal), the United States could be among the first countries to develop a synfuels industry, starting about the year 2030.

These assumptions and conditions are based on analyses presented in Ridker and Watson (1980) and in Ayres, Ridker, and Watson (1980). However, adjustments were made for a higher level of energy conservation than was originally built into these two studies.

Projections for nonconventional liquid hydrocarbons, based on these assumptions and conditions, are as follows:

Year	Total transportation liquid demand (10^{15} Btu)	Total nonconventional liquids (10^{15} Btu)	Liquids from converted coal (10^{15} Btu)	Million tons of coal at 24 million Btu per ton
1985	20 (Actual)	0	0	0
2000	21	0	0	0
2030	25	0	0	0
2045	28	10	5	297
2060	30	20	10	596
2075	33	33	16.5	983

(For the last column, a conversion efficiency of 70 percent is assumed.)

For use in DCAM, the projections of synfuel plant coal demand must be allocated to AQCR's. The AQCR allocation is guided by the principles that coal conversion plants will be located close to water (an input required for conversion), close to relatively cheap coal, and close to pipelines for transporting the product to market; and that the current pattern of liquid fuel demand locations is a good approximation of the future pattern. The allocations also are established so that the build up of synfuel production in any particular AQCR is not excessive. The allocation (percent of total output produced in indicated AQCR's) is as follows:

AQCR	Location	2045	2060	2075
22	Shreveport, La.	0.17	0.083	0.076
212	Austin, Tex.	0	0	0.076
172	Bismark, N. Dak.	0.17	0.083	0.076
243	Rock Springs, Wyo.	0.17	0.083	0.076
146	Grand Island, Nebr.	0.17	0.087	0.076
14	Flagstaff, Ariz.	0	0.083	0.076
154	Raton, N. Mex.	0	0.083	0.076
105	Bowling Green, Ky.	0.17	0.083	0.076
103	Huntington, W. Va.	0	0.083	0.076
179	Parkersburg, W. Va.	0	0.083	0.076
68	Dubuque, Iowa	0	0.083	0.076
69	Davenport, Iowa	0.15	0.083	0.076
75	Springfield, Ill.	0	0.083	0.088

Applying these shares to total synfuel coal demands provides synfuel coal demand by AQCR.

Figure I3 shows national coal demand projections. Total national coal demand increases by about a factor of 4, from 827 million tons in 1985 to 3.4 billion tons in 2075, along a linear path. From 1985 to 2075, the growth rate is 1.6 percent a year, a growth rate that is well within the recent experience of the U.S. coal industry (U.S. Department of Energy, 1987b).

Coal demand projections at the AQCR level for selected years are provided in table I3 (1988), table I4 (1998), table I5 (2025), and table I6 (2053). The national totals at the end of each of these tables are included in the national projections shown in figure I3.

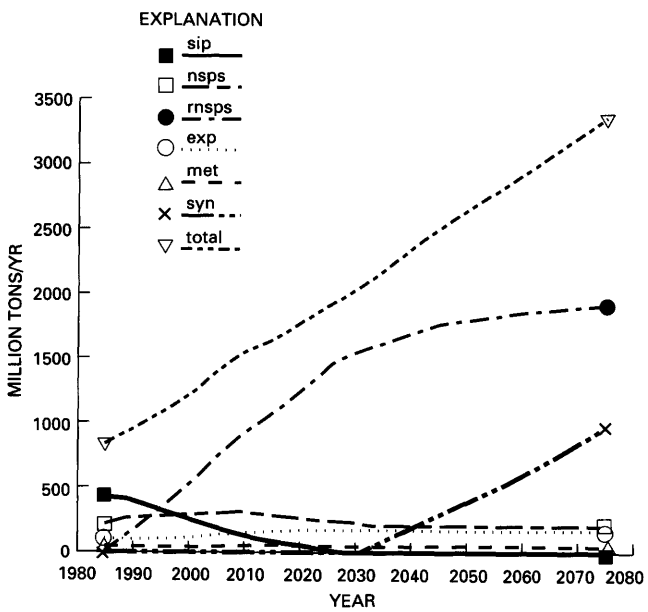

Figure I3. National coal demand projections.

References

Argonne National Laboratory, 1986, Total utility coal use by Federal region, 1980–2030: data provided by L. Streets (prepared for the U.S. Department of Energy), Argonne, Ill.

Ayres, Robert U., Ridker, Ronald G., and Watson, William D., 1980, Alternative future scenarios for the SPS comparative assessment (prepared for Argonne National Laboratory), 118 p.

Cowan, P.J., 1979, The role of models in energy and environmental policymaking: a case study of the strategic environmental assessment system: U. of Pennsylvania M.S. thesis, 146 p.

E.H. Pechan Associates, 1985, Final SO_2 emission limits by State, plant, and unit (prepared for the U.S. Department of Energy), 195 p.

Federal Energy Administration, 1974, Major fuel burning installation data base: Washington, D.C.

Mitre Corporation, 1980, Introduction to the strategic environmental assessment system (prepared for the U.S. Department of Energy): McLean, Va., 65 p.

Ridker, Ronald G., and Watson, William D., 1980, To choose a future, resource and environmental consequences of alternative growth paths: Baltimore, Md., Johns Hopkins University Press, for Resources for the Future, 463 p.

U.S. Department of Energy, 1985, Energy Information Administration, Annual energy outlook 1984: Washington, D.C., U.S. Government Printing Office, DOE/EIA-0383(84), 354 p.

———1986a, Energy Information Administration, Electric generating plant file, data provided by A. Breuel: Washington, D.C.

———1986b, Energy Information Administration, Cost and quality of fuels for electric utility plants 1985: Washington, D.C., U.S. Government Printing Office, 212 p.

———1986c, Energy Information Administration, Annual energy outlook 1985: Washington, D.C., U.S. Government Printing Office, DOE/EIA-0383(85), 99 p.

———1986d, Energy Information Administration, Quarterly coal report: Washington, D.C., U.S. Government Printing Office, DOE/EIA-0121(85/4Q), table 12, p. 26.

———1986e, Energy Information Administration, Coal distribution January-December 1985: Washington, D.C., U.S. Government Printing Office, DOE/EIA-0125(85/4Q), table 7, p. 26.
———1987a, Energy Information Administration, Annual energy review 1986: Washington, D.C., U.S. Government Printing Office, DOE/EIA-0384(86), table 4, p. 11.
———1987b, Energy Information Administration, Annual energy review 1986: Washington, D.C., U.S. Government Printing Office, DOE/EIA-0384(86), table 73, p. 165.
U.S. Environmental Protection Agency, 1972, Office of Air Programs, Federal air quality control regions: Washington, D.C., U.S. Government Printing Office, 199 p.
U.S. Water Resources Council, 1974, 1972 OBERS projections: regional economic activity in U.S.: Washington, D.C., U.S. Government Printing Office.

Appendix Tables

Table A1. Dynamic piecewise linear programming model of the U.S. national coal market

Objective Function

$$\text{Minimize } Z = \sum_{s=1}^{S}\sum_{i=1}^{I}\sum_{j=1}^{J}\sum_{k=1}^{K}\sum_{l=1}^{L}\sum_{t=1}^{T} d_t(e_{si} + n_{ijl} + b_{sijk})x_{sijklt} + \sum_{s=1}^{S}\sum_{\underline{i}=1}^{I}\sum_{\underline{j}=1}^{J}\sum_{k=1}^{K}\sum_{l=1}^{L}\sum_{t=1}^{T} d_t(e_{s\underline{i}} + n_{\underline{ij}l})y_{s\underline{ij}lt}$$

Constraints

SIP Demand: $\sum_{s}\sum_{l} y_{s\underline{ij}lt} \geq SD_{\underline{ij}t}$ — i and j fixed, $t = 1,\ldots,T$

Other Demand: $\sum_{s}\sum_{i}\sum_{l} \alpha_i x_{sijklt} \geq D_{jkt}$ — $j = 1,\ldots,J$; $k = 1,\ldots,K$; $t = 1,\ldots,T$

SOX Discharge NSPS Demands: $\sum_{s}\sum_{i}\sum_{l} \beta_{sik} x_{sijklt} \leq \beta D_{jkt}$ — $j = 1,\ldots,J$; k at index values for NSPS demands; $t = 1,\ldots,T$

SIP Limits: $y_{s\underline{i}} \leq SIP_{\underline{ij}t}$ — i and j fixed, $t = 1,\ldots,T$

Supply: $\sum_{j}\sum_{k}\sum_{l} 1 \cdot x_{sijkl1} + \sum_{\underline{j}}\sum_{k}\sum_{l} 1 \cdot y_{s\underline{ij}l1} \leq R_{si}/3$ — $s = 1,\ldots,S$; $i = 1,\ldots,I$; First time period

$\sum_{j}\sum_{k}\sum_{l}\sum_{t=1}^{2} 1 \cdot x_{sijklt} + \sum_{\underline{j}}\sum_{k}\sum_{l}\sum_{t=1}^{2} 1 \cdot y_{s\underline{ij}lt} \leq 2R_{si}/3$ — $s = 1,\ldots,S$; $i = 1,\ldots,I$; First two time periods

$\sum_{j}\sum_{k}\sum_{l}\sum_{t} 1 \cdot x_{sijklt} + \sum_{\underline{j}}\sum_{k}\sum_{l}\sum_{t} 1 \cdot y_{s\underline{ij}lt} \leq R_{si}$ — $s = 1,\ldots,S$; $i = 1,\ldots,I$; Three or more time periods

River Locks: $\sum_{s}\sum_{i}\sum_{j}\sum_{k} 1 \cdot x^{w}_{sijk3t} + \sum_{s}\sum_{\underline{i}}\sum_{\underline{j}} 1 \cdot y^{w}_{s\underline{ij}3t} \leq V_w$ — $t = 1,\ldots,T$

Electric Transmission:

$\sum_{s}\sum_{j}\sum_{k} 1 \cdot x_{sijk4t} + \sum_{s}\sum_{\underline{j}} 1 \cdot y_{s\underline{ij}4t} \leq E_{it}$ — $i = 1,\ldots,I$; $t = 1,\ldots,T$

Unit Trains:

x_{sijk2t} possibly greater than zero if $D_{jkt} \geq 500{,}000$ per year

$y_{s\underline{ij}2t}$ possibly greater than zero if $SD_{\underline{ij}} \geq 500{,}000$ per year

Coal Quality, Export and Metallurgical Shipments:

For k at index values for export and metalldurgical demands,

x_{sijklt} possibly greater than zero if

$Sulfur_{si} \leq$ E&M Sulfur

$Btu_i \geq$ E&M Btu

Non-Negative Shipments:

$x_{sijklt} \geq 0$ for all s,i,j,k,l and t

$y_{s\underline{ij}lt} \geq 0$ for all s,$\underline{i}$,$\underline{j}$,l and t

Table A2. Legend for interpreting the MSM's mathematical formulation

Indexes	
s	Index for steps on mineable coal resource cost schedule in coal supply region i.
S	Total number of steps.
i	Index for coal supply regions.
I	Total number of coal supply regions.
j	Index for coal demand regions, i.e. for each AQCR.
J	Total number of AQCR's.
k	Index for different kinds of demands: Unscrubbed coal in NSPS boilers, coal scrubbed at low levels in NSPS boilers, coal scrubbed at high levels in NSPS boilers, RNSPS coal, export coal and metallurgical coal. (Note: SIP coal accounted for elsewhere as separate demand.)
K	Total number of demand categories.
l	Index for transport mode: 1 is for regular rail, 2 is for unit train, 3 is for barge or combination rail/barge and 4 is for electric transmission.
L	Total number of tansport modes.
t	Index for time period.
T	Total number of time periods.
w	Index for river lock.
Symbols	
d_t	Discount factor centered at mid-point of each time period with real interest rate of 8%.
e_{si}	Extraction cost at step s in coal supply region i (1985 $/ton).
n_{ijl}	Transport cost from coal supply region i to coal demand region j via transport mode l (1985 $/ton).
b_{sijk}	Scrubbing cost (1985 $/ton) for coal at step s in coal supply region i for demand keyion j and demand type k. (Note: $b_{sijk} = 0$ for unscrubbed NSPS coal, export coal and metallurgical coal.)
x_{sijklt}	Tons shipped from step s in coal supply region i to demand region j and demand category k via transport mode l in time period t.
$y_{\underline{si}\underline{j}lt}$	Tons shipped from step s in fixed coal suppy region i to fixed demand region j for SIP boilers via transport mode l in time period t. Underscores on i and j indicate that SIP boilers are required to obtain coal from certain supply regions (see discussion of SIP supply possibilities in appendix G, Coal Supply Module).
$SD_{\underline{ij}t}$	SIP boiler demand (tons) required to be met in demand region j by shipments from a certain supply region i in time period t.
D_{jkt}	Other boiler demand (tons of coal containing 24 million Btu per ton) in region j, demand category k and time period t.
α_i	Factor in supply region i to convert tons of coal into tons of coal containing 24 million Btu per ton (= coal Btu/ton in supply region i divided by 24,000,000 Btu/ton).
β_{sik}	Factor at step s in coal supply region i for NSPS coal shipments to convert tons of coal into tons of sulfur (= sulfur fraction by weight adjusted for sulfur removal by scrubbing).

Table A2. Legend for interpreting the MSM's mathematical formulation—Contined

β	Factor to convert tons of coal (containing 24 million Btu per ton) into tons of sulfur allowed to be discharged from NSPS boilers (= .0072, consistent with federal discharge limit of 1.2 lbs of SOX per million Btu).
γ_{si}	SOX discharge from unscrubbed coal at step s in coal supply region i (in lbs of SOX per million Btu).
SIP_{ijt}	SOX SIP limit for coal shipped from a specific coal supply region i to coal demand region j in time period t (in lbs of SOX per million Btu).
R_{si}	Tons of coal available at step s in coal supply region i.
x^{w}_{sijk3t}	Tons shipped by barge or by combination rail/barge through river lock w (all demands except SIP demands).
y^{w}_{sij3t}	Tons shipped by barge or by combination rail/barge through river lock w to satisfy SIP demands.
V_w	Lock capacity (in tons per time period) for river lock w.
E_{it}	Transmission line capacity (in tons) for coal supply region i in time period t.
$Sulfur_{si}$	Sulfur percentage by weight for coal at step s in coal supply region i.
E&M Sulfur	Upper bound on sulfur percentage for coal shipped to export and metallurgical markets.
Btu_i	Btu content (Btu/lb) for coal in coal supply region i.
E&M Btu	Lower bound on Btu content (Btu/lb) for coal shipped to export and metallurgical markets.

Table B1. Coal supply regions in DCAM*

SUPPLY REGION NUMBER	OUT-BOUND NODE FOR COAL SHIPMENT	COUNTY AND STATE		FIPS
3	BIRMINGHAM, AL	BIBB	AL	1007
3	BIRMINGHAM, AL	BLOUNT	AL	1009
3	BIRMINGHAM, AL	CULLMAN	AL	1043
3	BIRMINGHAM, AL	FAYETTE	AL	1057
3	BIRMINGHAM, AL	FRANKLIN	AL	1059
3	BIRMINGHAM, AL	JEFFERSON	AL	1073
3	BIRMINGHAM, AL	LAMAR	AL	1075
3	BIRMINGHAM, AL	MARION	AL	1093
3	BIRMINGHAM, AL	PICKENS	AL	1107
3	BIRMINGHAM, AL	SHELBY	AL	1117
3	BIRMINGHAM, AL	ST CLAIR	AL	1115
3	BIRMINGHAM, AL	TUSCALOOSA	AL	1125
3	BIRMINGHAM, AL	WALKER	AL	1127
3	BIRMINGHAM, AL	WINSTON	AL	1133
4	JASPER, TN	CHEROKEE	AL	1019
4	JASPER, TN	DE KALB	AL	1049
4	JASPER, TN	ETOWAH	AL	1055
4	JASPER, TN	JACKSON	AL	1071
4	JASPER, TN	LAWRENCE	AL	1079
4	JASPER, TN	MADISON	AL	1089
4	JASPER, TN	MARSHALL	AL	1095
4	JASPER, TN	MORGAN	AL	1103
4	JASPER, TN	CHATTOOGA	GA	13055
4	JASPER, TN	DADE	GA	13083
4	JASPER, TN	WALKER	GA	13295
4	JASPER, TN	BLEDSOE	TN	47007
4	JASPER, TN	FRANKLIN	TN	47051
4	JASPER, TN	GRUNDY	TN	47061
4	JASPER, TN	HAMILTON	TN	47065
4	JASPER, TN	MARION	TN	47115
4	JASPER, TN	MEIGS	TN	47121
4	JASPER, TN	RHEA	TN	47143
4	JASPER, TN	SEQUATCHIE	TN	47153
4	JASPER, TN	VAN BUREN	TN	47175
4	JASPER, TN	WARREN	TN	47177
7	OAK RIDGE, TN	CLINTON	KY	21053
7	OAK RIDGE, TN	WAYNE	KY	21231
7	OAK RIDGE, TN	ANDERSON	TN	47001
7	OAK RIDGE, TN	CAMPBELL	TN	47013
7	OAK RIDGE, TN	CLAIBORNE	TN	47025
7	OAK RIDGE, TN	CUMBERLAND	TN	47035
7	OAK RIDGE, TN	FENTRESS	TN	47049
7	OAK RIDGE, TN	MORGAN	TN	47129
7	OAK RIDGE, TN	OVERTON	TN	47133
7	OAK RIDGE, TN	PICKETT	TN	47137
7	OAK RIDGE, TN	PUTNAM	TN	47141
7	OAK RIDGE, TN	ROANE	TN	47145
7	OAK RIDGE, TN	SCOTT	TN	47151
7	OAK RIDGE, TN	WHITE	TN	47185
8	LEBANON, VA	BLAND	VA	51021
8	LEBANON, VA	MONTGOMERY	VA	51121
8	LEBANON, VA	PULASKI	VA	51155
8	LEBANON, VA	RUSSELL	VA	51167
8	LEBANON, VA	SCOTT	VA	51169
8	LEBANON, VA	SMYTH	VA	51173
8	LEBANON, VA	TAZEWELL	VA	51185
9	PIKEVILLE, KY	BREATHITT	KY	21025
9	PIKEVILLE, KY	FLOYD	KY	21071
9	PIKEVILLE, KY	HARLAN	KY	21095
9	PIKEVILLE, KY	KNOTT	KY	21119
9	PIKEVILLE, KY	LESLIE	KY	21131
9	PIKEVILLE, KY	LETCHER	KY	21133
9	PIKEVILLE, KY	MARTIN	KY	21159
9	PIKEVILLE, KY	PERRY	KY	21193
9	PIKEVILLE, KY	PIKE	KY	21195
9	PIKEVILLE, KY	BUCHANAN	VA	51027
9	PIKEVILLE, KY	DICKENSON	VA	51051
9	PIKEVILLE, KY	LEE	VA	51105

Table B1. Coal supply regions in DCAM*—Continued

SUPPLY REGION NUMBER	OUT-BOUND NODE FOR COAL SHIPMENT	COUNTY AND STATE		FIPS
9	PIKEVILLE, KY	WISE	VA	51195
10	MIDDLESBORO, KY	BELL	KY	21013
10	MIDDLESBORO, KY	CLAY	KY	21051
10	MIDDLESBORO, KY	KNOX	KY	21121
10	MIDDLESBORO, KY	LAUREL	KY	21125
10	MIDDLESBORO, KY	MCCREARY	KY	21147
10	MIDDLESBORO, KY	PULASKI	KY	21199
10	MIDDLESBORO, KY	WHITLEY	KY	21235
11	BEATTYVILLE, KY	ESTILL	KY	21065
11	BEATTYVILLE, KY	JACKSON	KY	21109
11	BEATTYVILLE, KY	LEE	KY	21129
11	BEATTYVILLE, KY	OWSLEY	KY	21189
11	BEATTYVILLE, KY	POWELL	KY	21197
11	BEATTYVILLE, KY	ROCKCASTLE	KY	21203
11	BEATTYVILLE, KY	WOLFE	KY	21237
12	SALYERSVILLE, KY	BOYD	KY	21019
12	SALYERSVILLE, KY	CARTER	KY	21043
12	SALYERSVILLE, KY	ELLIOTT	KY	21063
12	SALYERSVILLE, KY	GREENUP	KY	21089
12	SALYERSVILLE, KY	JOHNSON	KY	21115
12	SALYERSVILLE, KY	LAWRENCE	KY	21127
12	SALYERSVILLE, KY	MAGOFFIN	KY	21153
12	SALYERSVILLE, KY	MENIFEE	KY	21165
12	SALYERSVILLE, KY	MORGAN	KY	21175
12	SALYERSVILLE, KY	ROWAN	KY	21205
12	SALYERSVILLE, KY	LAWRENCE	OH	39087
13	PLEASANTVILLE, OH	ATHENS	OH	39009
13	PLEASANTVILLE, OH	FAIRFIELD	OH	39045
13	PLEASANTVILLE, OH	GALLIA	OH	39053
13	PLEASANTVILLE, OH	HOCKING	OH	39073
13	PLEASANTVILLE, OH	JACKSON	OH	39079
13	PLEASANTVILLE, OH	MEIGS	OH	39105
13	PLEASANTVILLE, OH	MORGAN	OH	39115
13	PLEASANTVILLE, OH	PERRY	OH	39127
13	PLEASANTVILLE, OH	PIKE	OH	39131
13	PLEASANTVILLE, OH	SCIOTO	OH	39145
13	PLEASANTVILLE, OH	VINTON	OH	39163
13	PLEASANTVILLE, OH	WASHINGTON	OH	39167
14	CADIZ, OH	CARROLL	OH	39019
14	CADIZ, OH	COSHOCTON	OH	39031
14	CADIZ, OH	GUENSEY	OH	39059
14	CADIZ, OH	HARRISON	OH	39067
14	CADIZ, OH	HOLMES	OH	39075
14	CADIZ, OH	KNOX	OH	39083
14	CADIZ, OH	LICKING	OH	39089
14	CADIZ, OH	MONROE	OH	39111
14	CADIZ, OH	MUSKINGUM	OH	39119
14	CADIZ, OH	NOBLE	OH	39121
14	CADIZ, OH	TUSCARAWAS	OH	39157
15	YOUNGSTOWN, OH	ASHLAND	OH	39005
15	YOUNGSTOWN, OH	COLUMBIANA	OH	39029
15	YOUNGSTOWN, OH	CUYAHOGA	OH	39035
15	YOUNGSTOWN, OH	GEAUGA	OH	39055
15	YOUNGSTOWN, OH	LAKE	OH	39085
15	YOUNGSTOWN, OH	MAHONING	OH	39099
15	YOUNGSTOWN, OH	MEDINA	OH	39103
15	YOUNGSTOWN, OH	PORTAGE	OH	39133
15	YOUNGSTOWN, OH	RICHLAND	OH	39139
15	YOUNGSTOWN, OH	STARK	OH	39151
15	YOUNGSTOWN, OH	SUMMIT	OH	39153
15	YOUNGSTOWN, OH	TRUMBULL	OH	39155
15	YOUNGSTOWN, OH	WAYNE	OH	39169
16	PITTSBURGH, PA	BELMONT	OH	39013
16	PITTSBURGH, PA	JEFFERSON	OH	39081
16	PITTSBURGH, PA	ALLEGHANY	PA	42003
16	PITTSBURGH, PA	BEAVER	PA	42007
16	PITTSBURGH, PA	FAYETTE	PA	42051
16	PITTSBURGH, PA	GREENE	PA	42059

Table B1. Coal supply regions in DCAM*—Continued

SUPPLY REGION NUMBER	OUT-BOUND NODE FOR COAL SHIPMENT	COUNTY AND STATE		FIPS
16	PITTSBURGH, PA	WASHINGTON	PA	42125
16	PITTSBURGH, PA	WESTMORELAND	PA	42129
16	PITTSBURGH, PA	BROOKE	WV	54009
16	PITTSBURGH, PA	HANCOCK	WV	54029
16	PITTSBURGH, PA	MARION	WV	54049
16	PITTSBURGH, PA	MARSHALL	WV	54051
16	PITTSBURGH, PA	MONONGALIA	WV	54061
16	PITTSBURGH, PA	OHIO	WV	54069
16	PITTSBURGH, PA	PRESTON	WV	54077
16	PITTSBURGH, PA	WETZEL	WV	54103
17	KITTANNING, PA	ARMSTRONG	PA	42005
17	KITTANNING, PA	BUTLER	PA	42019
17	KITTANNING, PA	CAMBRIA	PA	42021
17	KITTANNING, PA	CLARION	PA	42031
17	KITTANNING, PA	CLEARFIELD	PA	42033
17	KITTANNING, PA	INDIANA	PA	42063
17	KITTANNING, PA	JEFFERSON	PA	42065
17	KITTANNING, PA	LAWRENCE	PA	42073
18	SHARON, PA	CAMERON	PA	42023
18	SHARON, PA	CRAWFORD	PA	42039
18	SHARON, PA	ELK	PA	42047
18	SHARON, PA	FOREST	PA	42053
18	SHARON, PA	MCKEAN	PA	42083
18	SHARON, PA	MERCER	PA	42085
18	SHARON, PA	VENANGO	PA	42121
18	SHARON, PA	WARREN	PA	42123
19	STATE COLLEGE, PA	BRADFORD	PA	42015
19	STATE COLLEGE, PA	CARBON	PA	42025
19	STATE COLLEGE, PA	CENTRE	PA	42027
19	STATE COLLEGE, PA	CLINTON	PA	42035
19	STATE COLLEGE, PA	COLUMBIA	PA	42037
19	STATE COLLEGE, PA	DAUPHIN	PA	42043
19	STATE COLLEGE, PA	LACKAWANNA	PA	42069
19	STATE COLLEGE, PA	LEBANON	PA	42075
19	STATE COLLEGE, PA	LUZERNE	PA	42079
19	STATE COLLEGE, PA	LYCOMING	PA	42081
19	STATE COLLEGE, PA	NORTHHUMBLND	PA	42097
19	STATE COLLEGE, PA	POTTER	PA	42105
19	STATE COLLEGE, PA	SCHUYLKILL	PA	42107
19	STATE COLLEGE, PA	SULLIVAN	PA	42113
19	STATE COLLEGE, PA	TIOGA	PA	42117
19	STATE COLLEGE, PA	WAYNE	PA	42127
20	SOMERSET, PA	ALLEGANY	MD	24001
20	SOMERSET, PA	GARRETT	MD	24023
20	SOMERSET, PA	BEDFORD	PA	42009
20	SOMERSET, PA	BLAIR	PA	42013
20	SOMERSET, PA	FULTON	PA	42057
20	SOMERSET, PA	HUNTINGDON	PA	42061
20	SOMERSET, PA	SOMERSET	PA	42111
20	SOMERSET, PA	GRANT	WV	54023
20	SOMERSET, PA	HAMPSHIRE	WV	54027
20	SOMERSET, PA	HARDY	WV	54031
20	SOMERSET, PA	MINERAL	WV	54057
20	SOMERSET, PA	TUCKER	WV	54093
21	CHARLESTON, WV	BOONE	WV	54005
21	CHARLESTON, WV	CLAY	WV	54015
21	CHARLESTON, WV	FAYETTE	WV	54019
21	CHARLESTON, WV	KANAWHA	WV	54039
21	CHARLESTON, WV	LINCOLN	WV	54043
21	CHARLESTON, WV	LOGAN	WV	54045
21	CHARLESTON, WV	MCDOWELL	WV	54047
21	CHARLESTON, WV	MERCER	WV	54055
21	CHARLESTON, WV	MINGO	WV	54059
21	CHARLESTON, WV	NICHOLAS	WV	54067
21	CHARLESTON, WV	RALEIGH	WV	54081
21	CHARLESTON, WV	WAYNE	WV	54099
21	CHARLESTON, WV	WYOMING	WV	54109

Table B1. Coal supply regions in DCAM*—Continued

SUPPLY REGION NUMBER	OUT-BOUND NODE FOR COAL SHIPMENT	COUNTY AND STATE		FIPS
22	CLARKSBURG, WV	CABELL	WV	54011
22	CLARKSBURG, WV	CALHOUN	WV	54013
22	CLARKSBURG, WV	DODDRIDGE	WV	54017
22	CLARKSBURG, WV	GILMER	WV	54021
22	CLARKSBURG, WV	HARRISON	WV	54033
22	CLARKSBURG, WV	JACKSON	WV	54035
22	CLARKSBURG, WV	LEWIS	WV	54041
22	CLARKSBURG, WV	MASON	WV	54053
22	CLARKSBURG, WV	PLEASANTS	WV	54073
22	CLARKSBURG, WV	PUTNAM	WV	54079
22	CLARKSBURG, WV	RITCHIE	WV	54085
22	CLARKSBURG, WV	ROANE	WV	54087
22	CLARKSBURG, WV	TAYLOR	WV	54091
22	CLARKSBURG, WV	TYLER	WV	54095
22	CLARKSBURG, WV	WIRT	WV	54105
22	CLARKSBURG, WV	WOOD	WV	54107
23	PHILIPPI, WV	BARBOUR	WV	54001
23	PHILIPPI, WV	BRAXTON	WV	54007
23	PHILIPPI, WV	GREENBRIER	WV	54025
23	PHILIPPI, WV	MONROE	WV	54063
23	PHILIPPI, WV	PENDLETON	WV	54071
23	PHILIPPI, WV	POCAHONTAS	WV	54075
23	PHILIPPI, WV	RANDOLPH	WV	54083
23	PHILIPPI, WV	SUMMERS	WV	54089
23	PHILIPPI, WV	UPSHUR	WV	54097
23	PHILIPPI, WV	WEBSTER	WV	54101
26	PEORIA, IL	ADAMS	IL	17001
26	PEORIA, IL	BUREAU	IL	17011
26	PEORIA, IL	FULTON	IL	17057
26	PEORIA, IL	HANCOCK	IL	17067
26	PEORIA, IL	HENDERSON	IL	17071
26	PEORIA, IL	HENRY	IL	17073
26	PEORIA, IL	KNOX	IL	17095
26	PEORIA, IL	LEE	IL	17103
26	PEORIA, IL	MARSHALL	IL	17123
26	PEORIA, IL	MCDONOUGH	IL	17109
26	PEORIA, IL	MERCER	IL	17131
26	PEORIA, IL	PEORIA	IL	17143
26	PEORIA, IL	PUTNAM	IL	17155
26	PEORIA, IL	ROCK ISLAND	IL	17161
26	PEORIA, IL	SCHUYLER	IL	17169
26	PEORIA, IL	STARK	IL	17175
26	PEORIA, IL	WARREN	IL	17187
27	OTTAWA, IL	CHAMPAIGN	IL	17019
27	OTTAWA, IL	DE WITT	IL	17039
27	OTTAWA, IL	FORD	IL	17053
27	OTTAWA, IL	GRUNDY	IL	17063
27	OTTAWA, IL	IROQUOIS	IL	17075
27	OTTAWA, IL	KANKAKEE	IL	17091
27	OTTAWA, IL	LA SALLE	IL	17099
27	OTTAWA, IL	LIVINGSTON	IL	17105
27	OTTAWA, IL	LOGAN	IL	17107
27	OTTAWA, IL	MASON	IL	17125
27	OTTAWA, IL	MCLEAN	IL	17113
27	OTTAWA, IL	PIATT	IL	17147
27	OTTAWA, IL	TAZEWELL	IL	17179
27	OTTAWA, IL	WILL	IL	17197
27	OTTAWA, IL	WOODFORD	IL	17203
28	TAYLORVILLE, IL	BROWN	IL	17009
28	TAYLORVILLE, IL	CALHOUN	IL	17013
28	TAYLORVILLE, IL	CASS	IL	17017
28	TAYLORVILLE, IL	CHRISTIAN	IL	17021
28	TAYLORVILLE, IL	EFFINGHAM	IL	17049
28	TAYLORVILLE, IL	FAYETTE	IL	17051
28	TAYLORVILLE, IL	GREENE	IL	17061
28	TAYLORVILLE, IL	JERSEY	IL	17083
28	TAYLORVILLE, IL	MACON	IL	17115
28	TAYLORVILLE, IL	MACOUPIN	IL	17117

Table B1. Coal supply regions in DCAM*—Continued

SUPPLY REGION NUMBER	OUT-BOUND NODE FOR COAL SHIPMENT	COUNTY AND STATE		FIPS
28	TAYLORVILLE, IL	MENARD	IL	17129
28	TAYLORVILLE, IL	MONTGOMERY	IL	17135
28	TAYLORVILLE, IL	MORGAN	IL	17137
28	TAYLORVILLE, IL	MOULTRIE	IL	17139
28	TAYLORVILLE, IL	PIKE	IL	17149
28	TAYLORVILLE, IL	SANGAMON	IL	17167
28	TAYLORVILLE, IL	SCOTT	IL	17171
28	TAYLORVILLE, IL	SHELBY	IL	17173
29	MT. VERNON, IL	BOND	IL	17005
29	MT. VERNON, IL	CLINTON	IL	17027
29	MT. VERNON, IL	FRANKLIN	IL	17055
29	MT. VERNON, IL	JACKSON	IL	17077
29	MT. VERNON, IL	JEFFERSON	IL	17081
29	MT. VERNON, IL	JOHNSON	IL	17087
29	MT. VERNON, IL	MADISON	IL	17119
29	MT. VERNON, IL	MARION	IL	17121
29	MT. VERNON, IL	MONROE	IL	17133
29	MT. VERNON, IL	PERRY	IL	17145
29	MT. VERNON, IL	RANDOLPH	IL	17157
29	MT. VERNON, IL	ST CLAIR	IL	17163
29	MT. VERNON, IL	UNION	IL	17181
29	MT. VERNON, IL	WASHINGTON	IL	17189
29	MT. VERNON, IL	WILLIAMSON	IL	17199
30	TUSCOLA, IL	CLARK	IL	17023
30	TUSCOLA, IL	COLES	IL	17029
30	TUSCOLA, IL	CUMBERLAND	IL	17035
30	TUSCOLA, IL	DOUGLAS	IL	17041
30	TUSCOLA, IL	EDGAR	IL	17045
30	TUSCOLA, IL	VERMILION	IL	17183
30	TUSCOLA, IL	BENTON	IN	18007
30	TUSCOLA, IL	FOUNTAIN	IN	18045
30	TUSCOLA, IL	MONTGOMERY	IN	18107
30	TUSCOLA, IL	PARKE	IN	18121
30	TUSCOLA, IL	VERMILLION	IN	18165
30	TUSCOLA, IL	VIGO	IN	18167
30	TUSCOLA, IL	WARREN	IN	18171
31	HARRISBURG, IL	CLAY	IL	17025
31	HARRISBURG, IL	CRAWFORD	IL	17033
31	HARRISBURG, IL	EDWARDS	IL	17047
31	HARRISBURG, IL	GALLATIN	IL	17059
31	HARRISBURG, IL	HAMILTON	IL	17065
31	HARRISBURG, IL	HARDIN	IL	17069
31	HARRISBURG, IL	JASPER	IL	17079
31	HARRISBURG, IL	LAWRENCE	IL	17101
31	HARRISBURG, IL	POPE	IL	17151
31	HARRISBURG, IL	RICHLAND	IL	17159
31	HARRISBURG, IL	SALINE	IL	17165
31	HARRISBURG, IL	WABASH	IL	17185
31	HARRISBURG, IL	WAYNE	IL	17191
31	HARRISBURG, IL	WHITE	IL	17193
32	SULLIVAN, IN	CLAY	IN	18021
32	SULLIVAN, IN	DAVIESS	IN	18027
32	SULLIVAN, IN	GREENE	IN	18055
32	SULLIVAN, IN	KNOX	IN	18083
32	SULLIVAN, IN	MARTIN	IN	18101
32	SULLIVAN, IN	OWEN	IN	18119
32	SULLIVAN, IN	PUTNAM	IN	18133
32	SULLIVAN, IN	SULLIVAN	IN	18153
33	MORGANFIELD, KY	CRAWFORD	IN	18025
33	MORGANFIELD, KY	DUBOIS	IN	18037
33	MORGANFIELD, KY	FLOYD	IN	18043
33	MORGANFIELD, KY	GIBSON	IN	18051
33	MORGANFIELD, KY	HARRISON	IN	18061
33	MORGANFIELD, KY	ORANGE	IN	18117
33	MORGANFIELD, KY	PERRY	IN	18123
33	MORGANFIELD, KY	PIKE	IN	18125
33	MORGANFIELD, KY	POSEY	IN	18129

Table B1. Coal supply regions in DCAM*—Continued

SUPPLY REGION NUMBER	OUT-BOUND NODE FOR COAL SHIPMENT	COUNTY AND STATE		FIPS
33	MORGANFIELD, KY	SCOTT	IN	18143
33	MORGANFIELD, KY	SPENCER	IN	18147
33	MORGANFIELD, KY	VANDERBURGH	IN	18163
33	MORGANFIELD, KY	WARRICK	IN	18173
33	MORGANFIELD, KY	WASHINGTON	IN	18175
33	MORGANFIELD, KY	BRECKINRIDGE	KY	21027
33	MORGANFIELD, KY	DAVIESS	KY	21059
33	MORGANFIELD, KY	HANCOCK	KY	21091
33	MORGANFIELD, KY	HENDERSON	KY	21101
33	MORGANFIELD, KY	UNION	KY	21225
34	MADISONVILLE, KY	BUTLER	KY	21031
34	MADISONVILLE, KY	CALDWELL	KY	21033
34	MADISONVILLE, KY	CHRISTIAN	KY	21047
34	MADISONVILLE, KY	CRITTENDON	KY	21055
34	MADISONVILLE, KY	EDMONSON	KY	21061
34	MADISONVILLE, KY	GRAYSON	KY	21085
34	MADISONVILLE, KY	HOPKINS	KY	21107
34	MADISONVILLE, KY	LOGAN	KY	21141
34	MADISONVILLE, KY	MCLEAN	KY	21149
34	MADISONVILLE, KY	MUHLENBERG	KY	21177
34	MADISONVILLE, KY	OHIO	KY	21183
34	MADISONVILLE, KY	TODD	KY	21219
34	MADISONVILLE, KY	WARREN	KY	21227
34	MADISONVILLE, KY	WEBSTER	KY	21233
37	MARSHALL, TX	BIENVILLE	LA	22013
37	MARSHALL, TX	BOSSIER	LA	22015
37	MARSHALL, TX	CADDO	LA	22017
37	MARSHALL, TX	CLAIBORNE	LA	22027
37	MARSHALL, TX	DE SOTO	LA	22031
37	MARSHALL, TX	LINCOLN	LA	22061
37	MARSHALL, TX	NATCHITOCHES	LA	22069
37	MARSHALL, TX	RED RIVER	LA	22081
37	MARSHALL, TX	SABINE	LA	22085
37	MARSHALL, TX	WEBSTER	LA	22119
37	MARSHALL, TX	BOWIE	TX	48037
37	MARSHALL, TX	CASS	TX	48067
37	MARSHALL, TX	HARRISON	TX	48203
37	MARSHALL, TX	MARION	TX	48315
37	MARSHALL, TX	MORRIS	TX	48343
37	MARSHALL, TX	PANOLA	TX	48365
37	MARSHALL, TX	SABINE	TX	48403
37	MARSHALL, TX	SAN AUGUSTIN	TX	48405
37	MARSHALL, TX	SHELBY	TX	48419
38	MT. PLEASANT, TX	ANGELINA	TX	48005
38	MT. PLEASANT, TX	CAMP	TX	48063
38	MT. PLEASANT, TX	CHEROKEE	TX	48073
38	MT. PLEASANT, TX	FRANKLIN	TX	48159
38	MT. PLEASANT, TX	GREGG	TX	48183
38	MT. PLEASANT, TX	HOPKINS	TX	48223
38	MT. PLEASANT, TX	NACOGDOCHES	TX	48347
38	MT. PLEASANT, TX	RAINS	TX	48379
38	MT. PLEASANT, TX	RUSK	TX	48401
38	MT. PLEASANT, TX	SMITH	TX	48423
38	MT. PLEASANT, TX	TITUS	TX	48449
38	MT. PLEASANT, TX	UPSHUR	TX	48459
38	MT. PLEASANT, TX	VAN ZANDT	TX	48467
38	MT. PLEASANT, TX	WOOD	TX	48499
39	FAIRFIELD, TX	ANDERSON	TX	48001
39	FAIRFIELD, TX	BRAZOS	TX	48041
39	FAIRFIELD, TX	BURLESON	TX	48051
39	FAIRFIELD, TX	FREESTONE	TX	48161
39	FAIRFIELD, TX	GRIMES	TX	48185
39	FAIRFIELD, TX	HENDERSON	TX	48213
39	FAIRFIELD, TX	HOUSTON	TX	48225
39	FAIRFIELD, TX	LEE	TX	48287
39	FAIRFIELD, TX	LEON	TX	48289
39	FAIRFIELD, TX	MADISON	TX	48313
39	FAIRFIELD, TX	MILAM	TX	48331

Table B1. Coal supply regions in DCAM*—Continued

SUPPLY REGION NUMBER	OUT-BOUND NODE FOR COAL SHIPMENT	COUNTY AND STATE		FIPS
39	FAIRFIELD, TX	ROBERTSON	TX	48395
39	FAIRFIELD, TX	TRINITY	TX	48455
39	FAIRFIELD, TX	WALKER	TX	48471
39	FAIRFIELD, TX	WASHINGTON	TX	48477
40	SAN ANTONIO, TX	ATASCOSA	TX	48013
40	SAN ANTONIO, TX	BASTROP	TX	48021
40	SAN ANTONIO, TX	BEXAR	TX	48029
40	SAN ANTONIO, TX	CALDWELL	TX	48055
40	SAN ANTONIO, TX	DIMMIT	TX	48127
40	SAN ANTONIO, TX	FAYETTE	TX	48149
40	SAN ANTONIO, TX	FRIO	TX	48163
40	SAN ANTONIO, TX	GONZALES	TX	48177
40	SAN ANTONIO, TX	GUADALUPE	TX	48187
40	SAN ANTONIO, TX	LA SALLE	TX	48283
40	SAN ANTONIO, TX	MAVERICK	TX	48323
40	SAN ANTONIO, TX	MEDINA	TX	48325
40	SAN ANTONIO, TX	WEBB	TX	48479
40	SAN ANTONIO, TX	WILSON	TX	48493
40	SAN ANTONIO, TX	ZAVALA	TX	48507
43	POTEAU, OK	CRAWFORD	AR	5033
43	POTEAU, OK	FRANKLIN	AR	5047
43	POTEAU, OK	JOHNSON	AR	5071
43	POTEAU, OK	LOGAN	AR	5083
43	POTEAU, OK	POPE	AR	5115
43	POTEAU, OK	SCOTT	AR	5127
43	POTEAU, OK	SEBASTIAN	AR	5131
43	POTEAU, OK	YELL	AR	5149
43	POTEAU, OK	ATOKA	OK	40005
43	POTEAU, OK	CARTER	OK	40019
43	POTEAU, OK	COAL	OK	40029
43	POTEAU, OK	HASKELL	OK	40061
43	POTEAU, OK	HUGHES	OK	40063
43	POTEAU, OK	JOHNSTON	OK	40069
43	POTEAU, OK	LATIMER	OK	40077
43	POTEAU, OK	LE FLORE	OK	40079
43	POTEAU, OK	MCINTOSH	OK	40091
43	POTEAU, OK	OKFUSKEE	OK	40107
43	POTEAU, OK	PITTSBURG	OK	40121
43	POTEAU, OK	PONTOTOC	OK	40123
43	POTEAU, OK	SEMINOLE	OK	40133
43	POTEAU, OK	SEQUOYAH	OK	40135
46	MUSKOGEE, OK	CRAIG	OK	40035
46	MUSKOGEE, OK	CREEK	OK	40037
46	MUSKOGEE, OK	MAYES	OK	40097
46	MUSKOGEE, OK	MUSKOGEE	OK	40101
46	MUSKOGEE, OK	NOWATA	OK	40105
46	MUSKOGEE, OK	OKMULGEE	OK	40111
46	MUSKOGEE, OK	OSAGE	OK	40113
46	MUSKOGEE, OK	PAWNEE	OK	40117
46	MUSKOGEE, OK	ROGERS	OK	40131
46	MUSKOGEE, OK	TULSA	OK	40143
46	MUSKOGEE, OK	WAGONER	OK	40145
46	MUSKOGEE, OK	WASHINGTON	OK	40147
47	PITTSBURGH, KS	ALLEN	KS	20001
47	PITTSBURGH, KS	BOURBON	KS	20011
47	PITTSBURGH, KS	CHAUTAUQUA	KS	20019
47	PITTSBURGH, KS	CHEROKEE	KS	20021
47	PITTSBURGH, KS	COWLEY	KS	20035
47	PITTSBURGH, KS	CRAWFORD	KS	20037
47	PITTSBURGH, KS	ELK	KS	20049
47	PITTSBURGH, KS	GREENWOOD	KS	20073
47	PITTSBURGH, KS	LABETTE	KS	20099
47	PITTSBURGH, KS	MONTGOMERY	KS	20125
47	PITTSBURGH, KS	NEOSHO	KS	20133
47	PITTSBURGH, KS	WILSON	KS	20205
47	PITTSBURGH, KS	WOODSON	KS	20207
47	PITTSBURGH, KS	BARTON	MO	29011

Table B1. Coal supply regions in DCAM*—Continued

SUPPLY REGION NUMBER	OUT-BOUND NODE FOR COAL SHIPMENT	COUNTY AND STATE		FIPS
47	PITTSBURGH, KS	CEDAR	MO	29039
47	PITTSBURGH, KS	DADE	MO	29057
47	PITTSBURGH, KS	JASPER	MO	29097
47	PITTSBURGH, KS	VERNON	MO	29217
47	PITTSBURGH, KS	OTTAWA	OK	40115
48	CLINTON, MO	BATES	MO	29013
48	CLINTON, MO	BENTON	MO	29015
48	CLINTON, MO	CASS	MO	29037
48	CLINTON, MO	COOPER	MO	29053
48	CLINTON, MO	HENRY	MO	29083
48	CLINTON, MO	JACKSON	MO	29095
48	CLINTON, MO	JOHNSON	MO	29101
48	CLINTON, MO	LAFAYETTE	MO	29107
48	CLINTON, MO	PETTIS	MO	29159
48	CLINTON, MO	SALINE	MO	29195
48	CLINTON, MO	ST CLAIR	MO	29185
49	MACON, MO	ADAIR	MO	29001
49	MACON, MO	AUDRAIN	MO	29007
49	MACON, MO	BOONE	MO	29019
49	MACON, MO	CALLAWAY	MO	29027
49	MACON, MO	CHARITON	MO	29041
49	MACON, MO	CLARK	MO	29045
49	MACON, MO	HOWARD	MO	29089
49	MACON, MO	KNOX	MO	29103
49	MACON, MO	LEWIS	MO	29111
49	MACON, MO	LINCOLN	MO	29113
49	MACON, MO	LINN	MO	29115
49	MACON, MO	MACON	MO	29121
49	MACON, MO	MARION	MO	29127
49	MACON, MO	MONROE	MO	29137
49	MACON, MO	MONTGOMERY	MO	29139
49	MACON, MO	PIKE	MO	29163
49	MACON, MO	PUTNAM	MO	29171
49	MACON, MO	RALLS	MO	29173
49	MACON, MO	RANDOLPH	MO	29175
49	MACON, MO	SCHUYLER	MO	29197
49	MACON, MO	SCOTLAND	MO	29199
49	MACON, MO	SHELBY	MO	29205
49	MACON, MO	ST CHARLES	MO	29183
49	MACON, MO	ST LOUIS	MO	29189
49	MACON, MO	SULLIVAN	MO	29211
51	MOUND CITY, KS	ANDERSON	KS	20003
51	MOUND CITY, KS	CHASE	KS	20017
51	MOUND CITY, KS	COFFEY	KS	20031
51	MOUND CITY, KS	DOUGLAS	KS	20045
51	MOUND CITY, KS	FRANKLIN	KS	20059
51	MOUND CITY, KS	JACKSON	KS	20085
51	MOUND CITY, KS	JEFFERSON	KS	20087
51	MOUND CITY, KS	JOHNSON	KS	20091
51	MOUND CITY, KS	LINN	KS	20107
51	MOUND CITY, KS	LYON	KS	20111
51	MOUND CITY, KS	MIAMI	KS	20121
51	MOUND CITY, KS	MORRIS	KS	20127
51	MOUND CITY, KS	OSAGE	KS	20139
51	MOUND CITY, KS	POTTAWATOMIE	KS	20149
51	MOUND CITY, KS	SHAWNEE	KS	20177
51	MOUND CITY, KS	WABAUNSEE	KS	20197
51	MOUND CITY, KS	WYANDOTTE	KS	20209
56	ALBIA, IA	APPANOOSE	IA	19007
56	ALBIA, IA	DAVIS	IA	19051
56	ALBIA, IA	DES MOINES	IA	19057
56	ALBIA, IA	HENRY	IA	19087
56	ALBIA, IA	JEFFERSON	IA	19101
56	ALBIA, IA	KEOKUK	IA	19107
56	ALBIA, IA	LEE	IA	19111
56	ALBIA, IA	LOUISA	IA	19115
56	ALBIA, IA	LUCAS	IA	19117
56	ALBIA, IA	MAHASKA	IA	19123

Table B1. Coal supply regions in DCAM*—Continued

SUPPLY REGION NUMBER	OUT-BOUND NODE FOR COAL SHIPMENT	COUNTY AND STATE		FIPS
56	ALBIA, IA	MARION	IA	19125
56	ALBIA, IA	MONROE	IA	19135
56	ALBIA, IA	MUSCATINE	IA	19139
56	ALBIA, IA	SCOTT	IA	19163
56	ALBIA, IA	VAN BUREN	IA	19177
56	ALBIA, IA	WAPELLO	IA	19179
56	ALBIA, IA	WARREN	IA	19181
56	ALBIA, IA	WASHINGTON	IA	19183
56	ALBIA, IA	WAYNE	IA	19185
57	WINSLOW, AZ	APACHE	AZ	4001
57	WINSLOW, AZ	COCONINO	AZ	4005
57	WINSLOW, AZ	NAVAJO	AZ	4017
61	RATON, NM	HUERFANO	CO	8055
61	RATON, NM	LAS ANIMAS	CO	8071
61	RATON, NM	COLFAX	NM	35007
61	RATON, NM	MORA	NM	35033
61	RATON, NM	SAN MIGUEL	NM	35047
62	GUNNISON, CO	ARCHULETA	CO	8007
62	GUNNISON, CO	DELTA	CO	8029
62	GUNNISON, CO	DOLORES	CO	8033
62	GUNNISON, CO	GARFIELD	CO	8045
62	GUNNISON, CO	GUNNISON	CO	8051
62	GUNNISON, CO	LA PLATA	CO	8067
62	GUNNISON, CO	MESA	CO	8077
62	GUNNISON, CO	MONTEZUMA	CO	8083
62	GUNNISON, CO	MONTROSE	CO	8085
62	GUNNISON, CO	OURAY	CO	8091
62	GUNNISON, CO	PITKIN	CO	8097
62	GUNNISON, CO	SAN JUAN	CO	8111
62	GUNNISON, CO	SAN MIGUEL	CO	8113
62	GUNNISON, CO	GRAND	UT	49019
63	STEAMBOAT SPRINGS, CO	GRAND	CO	8049
63	STEAMBOAT SPRINGS, CO	RIO BLANCO	CO	8103
66	RAWLINS, WY	JACKSON	CO	8057
66	RAWLINS, WY	ALBANY	WY	56001
66	RAWLINS, WY	GOSHEN	WY	56015
66	RAWLINS, WY	NATRONA	WY	56025
66	RAWLINS, WY	PLATTE	WY	56031
67	SHERIDAN & JOHNSON CTY, WY	JOHNSON	WY	56019
67	SHERIDAN & JOHNSON CTY, WY	SHERIDAN	WY	56033
68	ROCK SPRINGS, WY	LINCOLN	WY	56023
68	ROCK SPRINGS, WY	UINTA	WY	56041
70	PRICE, UT	CARBON	UT	49007
70	PRICE, UT	EMERY	UT	49015
70	PRICE, UT	SAN JUAN	UT	49037
70	PRICE, UT	SANPETE	UT	49039
70	PRICE, UT	SEVIER	UT	49041
70	PRICE, UT	WAYNE	UT	49055
75	FORSYTH, MT	CARBON	MT	30009
75	FORSYTH, MT	MUSSELSHELL	MT	30065
75	FORSYTH, MT	STILLWATER	MT	30095
75	FORSYTH, MT	TREASURE	MT	30103
75	FORSYTH, MT	YELLOWSTONE	MT	30111
80	MINOT, ND	BOTTINEAU	ND	38009
80	MINOT, ND	BURKE	ND	38013
80	MINOT, ND	BURLEIGH	ND	38015
80	MINOT, ND	KIDDER	ND	38043
80	MINOT, ND	MCHENRY	ND	38049
80	MINOT, ND	MCLEAN	ND	38055
80	MINOT, ND	MOUNTRAIL	ND	38061
80	MINOT, ND	RENVILLE	ND	38075
80	MINOT, ND	ROLETTE	ND	38079
80	MINOT, ND	SHERIDAN	ND	38083
80	MINOT, ND	WARD	ND	38101
80	MINOT, ND	WELLS	ND	38103
87	CENTRALIA, WA	COWLITZ	WA	53015
87	CENTRALIA, WA	KING	WA	53033

Table B1. Coal supply regions in DCAM*—Continued

SUPPLY REGION NUMBER	OUT-BOUND NODE FOR COAL SHIPMENT	COUNTY AND STATE		FIPS
87	CENTRALIA, WA	KITTITAS	WA	53037
87	CENTRALIA, WA	LEWIS	WA	53041
87	CENTRALIA, WA	PACIFIC	WA	53049
87	CENTRALIA, WA	PIERCE	WA	53053
87	CENTRALIA, WA	THURSTON	WA	53067
90	SAN JUAN CTY, NM	SAN JUAN	NM	35045
91	MCKINLEY CTY, NM	MCKINLEY	NM	35031
92	CARBON CTY, WY	CARBON	WY	56007
93	MOFFAT & ROUTT CTY, CO	MOFFATT	CO	8081
93	MOFFAT & ROUTT CTY, CO	ROUTT	CO	8107
94	SWEETWATER CTY, WY	SWEETWATER	WY	56037
95	POWDER RIVER BASIN, MT	BIG HORN	MT	30003
95	POWDER RIVER BASIN, MT	CUSTER	MT	30017
95	POWDER RIVER BASIN, MT	POWDER RIVER	MT	30075
95	POWDER RIVER BASIN, MT	ROSEBUD	MT	30087
96	POWDER RIVER BASIN, WY	CAMPBELL	WY	56005
96	POWDER RIVER BASIN, WY	CONVERSE	WY	56009
96	POWDER RIVER BASIN, WY	CROOK	WY	56011
96	POWDER RIVER BASIN, WY	WESTON	WY	56045
97	FORT UNION, MT	CARTER	MT	30011
97	FORT UNION, MT	DAWSON	MT	30021
97	FORT UNION, MT	FALLON	MT	30025
97	FORT UNION, MT	RICHLAND	MT	30083
97	FORT UNION, MT	ROOSEVELT	MT	30085
97	FORT UNION, MT	SHERIDAN	MT	30091
97	FORT UNION, MT	WIBAUX	MT	30109
98	FORT UNION, ND	ADAMS	ND	38001
98	FORT UNION, ND	BILLINGS	ND	38007
98	FORT UNION, ND	BOWMAN	ND	38011
98	FORT UNION, ND	DIVIDE	ND	38023
98	FORT UNION, ND	DUNN	ND	38025
98	FORT UNION, ND	GOLDEN VALLY	ND	38033
98	FORT UNION, ND	GRANT	ND	38037
98	FORT UNION, ND	HETTINGER	ND	38041
98	FORT UNION, ND	MCKENZIE	ND	38053
98	FORT UNION, ND	MERCER	ND	38057
98	FORT UNION, ND	MORTON	ND	38059
98	FORT UNION, ND	OLIVER	ND	38065
98	FORT UNION, ND	SLOPE	ND	38087
98	FORT UNION, ND	STARK	ND	38089
98	FORT UNION, ND	WILLIAMS	ND	38105
99	DENVER BASIN, CO	ADAMS	CO	8001
99	DENVER BASIN, CO	ARAPAHOE	CO	8005
99	DENVER BASIN, CO	DENVER	CO	8031
99	DENVER BASIN, CO	DOUGLAS	CO	8035
99	DENVER BASIN, CO	EL PASO	CO	8041
99	DENVER BASIN, CO	ELBERT	CO	8039
99	DENVER BASIN, CO	MORGAN	CO	8087
99	DENVER BASIN, CO	WELD	CO	8123

*INDICATES ONLY THOSE COAL SUPPLY REGIONS FOR WHICH COAL SUPPLY DATA WERE PROCESSED IN DCAM'S MARKET SIMULATION MODEL. REVIEW INDICATED THAT SOME COAL SUPPLY REGIONS CONTAIN MAINLY HIGH COST LOW QUALITY RESOURCES. THESE COAL SUPPLY REGIONS WERE NOT CARRIED FORWARD FOR ANALYSIS IN THE MARKET SIMULATION MODEL. THE AMOUNT OF COAL TONNAGE IN THE DROPPED COAL SUPPLY REGIONS IS SHOWN IN TABLE B4.

Table B2. Minable coal resource base, by State—no land-use restrictions (million short tons)

State	(1) Underground	(2) Surface	(3) Demonstrated Reserve Base (DRB) Underground*	(4) DRB Surface*
Alabama[d]	13014	6007	1669	3410
Arizona	102	236	102	236
Arkansas	273	145	273	145
Colorado	12234	4908	12234	4908
Georgia	2	1	2	1
Illinois	63286	15562	63286	15562
Indiana	8924	1490	8924	1490
Iowa	1733	461	1733	461
Kansas	0	986	0	986
Kentucky, East	8199	2008	8199	2008
Kentucky, West	16820	3944	16820	3944
Maryland	695	97	695	97
Michigan	123	5	123	5
Missouri	1479	4556	1479	4556
Montana[d]	70959	90093	70959	49278
New Mexico[d]	2127	9022	2127	2498
North Carolina	11	0	11	0
North Dakota[d]	0	17750	0	9835
Ohio	12945	5836	12945	5836
Oklahoma	1238	369	1238	369
Oregon	15	3	15	3
Pennsylvania	28296	1512	28296	1512
South Dakota	0	366	0	366
Tennessee	609	307	609	307
Texas	0	13713	0	13713
Utah	6074	268	6074	268
Virginia	2317	796	2317	796
Washington	1332	122	1332	122
West Virginia	33609	5047	33609	5047
Wyoming[d]	42555	58891	42555	26636
Total	328971	244501	317626	154395

* Source: Coal Production 1985, Table A3, p. 97, U.S. Dept of Energy, Washington, D.C., 1986

[d] Indicates that a difference exists between DRB estimates and estimates in the study.

Table B3. Minable coal resource base for supply regions affected by land-use restrictions, surface minable coal (base case—no land-use restrictions)

Supply Region	Base Case (Million Short Tons)
67 Sheridan & Johnson Cty, Wyo	11600
68 Rock Springs, Wyo	1954
75 Forsyth, Montana	855
80 Minot, North Dakota	2130
90 San Juan Cty, New Mexico	8286
91 McKinley Cty, New Mexico	740
92 Carbon Cty, Wyoming	6478
93 Moffat & Routt Cty, Colo.	3853
94 Sweetwater Cty, Wyoming	1255
95 Powder River, Montana	82985
96 Powder River, Wyoming	37600
Wyodak Bed, Campbell Cty	(27500)*
Other Beds	
Campbell Cty	(8000)
Converse Cty	(2100)
98 Fort Union, North Dakota	15620
Total**	173356
National Surface Minable Tonnage***	244501

* Parentheses indicate estimate by subregion for the Powder River Basin, Wyoming
** For supply regions shown in table
*** All coal supply regions

Table B4. Minable coal resource base, by DCAM coal supply region—no land-use restrictions (million short tons)*

	Supply Region**	Underground	Surface
3	Birmingham, AL	13000	3000
4	Jasper, TN	143	135
7	Oak Ridge, TN	483	240
8	Lelbanon, VA	586	120
9	Pikeville, KY	8963	2154
10	Middlesboro, KY	425	176
11	Beattyville, KY	86	51
12	Salyersville, KY	809	475
13	Pleasantville, OH	2976	1755
14	Cadiz, OH	4623	2386
15	Youngstown, OH	1067	501
16	Pittsburgh, PA	27229	1744
17	Kittanning, PA	7036	880
18	Sharon, PA	418	58
19	State College, PA	6984	126
20	Somerset, PA	2657	3646
21	Charleston, WV	15536	3646
22	Clarksburg, WV	2210	222
23	Philippi, WV	4455	774
26	Peoria, IL	3088	6652
27	Ottawa, IL	4160	902
28	Taylorville, IL	21761	1707
29	Mt. Vernon, IL	18357	4974
30	Tuscola, IL	6453	677
31	Harrisburg, IL	11236	873
32	Sullivan, IN	3897	794
33	Morganfield, KY	10118	1330
34	Madisonville, KY	9959	3086
37	Marshall, TX	0	2237
38	Mt. Pleasant, TX	0	4027
39	Fairfield, TX	0	5225
40	San Antonio, TX	0	2224
43	Poteau, OK	1133	288
46	Muskogee, OK	378	209
47	Pittsburgh, KN	43	1153
48	Clinton, MO	188	1674
49	Macon, MO	949	1923
51	Mound City, KN	0	388
56	Albia, IA	1195	318
57	Winslow, AZ	102	236
61	Raton, NM	2345	0
62	Gunnison, CO	3001	338
63	Steamboat Springs, CO	933	0
66	Rawlins, WY	899	716
67	Sheridan & Johnson Cty, WY	11589	11600
68	Rock Springs, WY	1827	1954
70	Price, VT	1621	39
75	Forsyth, MT	6170	855
80	Minot, ND	0	2130
87	Centralia, WA	1267	122
90	San Juan, Cty, NM	534	8286
91	McKinley Cty, NM	113	736
92	Carbon Cty, WY	2717	6478
93	Moffat & Routt Cty, CO	5230	3853
94	Sweetwater Cty, WY	5599	1255
95	Powder River Basin, MT	63944	82985
96	Powder River BAsin, WY	20397	37600
97	Fort Union Basin, MT	0	4646
98	Fort Union Basin, ND	0	15620
99	Denver Basin, CO	904	0
	Total Above Regions	321793	238765
	Total Excluded Regions	7178	5736
	Total U.S.	328971	244501

*Tonnages for supply regions carried forward to DCAM's Market Simulation Model. See footnote to Table B1.

**City and State is node for out-bound coal shipments.

Table B5. Btu content and distribution parameters for sulfur content by coal supply region

	Supply Region	Average Btu Content (Btu/lb)	Distribution Parameters for Sulfur Content (% By Weight) Minimum	Maximum	Average
3	Birmingham, AL	13188	0.40	4.90	1.22
4	Jasper, TN	13214	0.49	5.30	0.89
7	Oak Ridge, TN	13280	0.48	5.48	1.85
8	Lebanon, VA	13598	0.40	5.57	0.63
9	Pikeville, KY	13505	0.19	6.61	0.80
10	Middlesboro, KY	13377	0.48	6.70	1.21
11	Beattyville, KY	12306	0.50	4.05	1.50
12	Salyersville, KY	12284	0.70	5.80	1.89
13	Pleasantville, OH	11590	1.00	10.00	2.35
14	Cadiz, OH	12197	1.00	10.00	3.15
15	Youngstown, OH	12237	1.00	10.00	3.20
16	Pittsburgh, PA	13144	1.00	6.50	2.10
17	Kittanning, PA	13441	1.00	7.76	1.87
18	Sharon, PA	12771	1.00	6.79	3.12
19	State College, PA	13161	1.00	5.10	1.70
20	Somerset, PA	13520	0.80	6.29	1.58
21	Charleston, WV	13673	0.39	6.80	0.84
22	Clarksburg, WV	13251	0.80	6.45	2.70
23	Philippi, WV	13714	0.39	5.78	1.61
26	Peoria, IL	10632	2.42	5.37	3.27
27	Ottawa, IL	10995	1.46	8.46	4.18
28	Taylorville, IL	10561	2.62	5.16	4.16
29	Mt. Vernon, IL	11450	0.75	5.76	2.56
30	Tuscola, IL	11063	0.75	6.20	2.38
31	Harrisburg, IL	12396	0.75	4.35	2.14
32	Sullivan, IN	11443	0.75	7.07	2.82
33	Morganfield, KY	11811	1.00	6.70	3.20
34	Madisonville, KY	12215	1.00	6.70	3.20
37	Marshall, TX	6200	0.52	1.95	0.91
38	Mt. Pleasant, TX	6200	0.40	1.80	0.69
39	Fairfield, TX	7000	0.60	1.39	0.96
40	San Antonio, TX	6200	0.50	2.50	1.00
43	Poteau, OK	13488	0.50	9.10	1.66
46	Muskogee, OK	13059	0.50	7.27	2.08
47	Pittsburgh, KN	12153	1.15	12.30	3.40
48	Clinton, MO	11623	2.03	9.80	3.63
49	Macon, MO	10815	2.60	8.20	4.65
51	Mound City, KN	10471	4.82	5.17	5.00
56	Albia, IA	9959	1.65	13.10	4.73
57	Winslow, AZ	10602	0.40	2.32	0.66
61	Raton, NM	12332	0.38	2.09	0.60
62	Gunnison, CO	11700	0.28	2.62	0.79
63	Steamboat Springs, CO	10989	0.27	1.11	0.46
66	Rawlins, WY	9505	0.25	1.40	0.45
67	Sheridan & Johnson City, WY	8572	0.25	2.20	0.59
68	Rock Springs, WY	10864	0.27	4.72	0.72
70	Price, VT	12383	0.38	3.90	0.76
75	Forsyth, MT	10258	0.36	1.83	0.76
80	Minot, ND	6500	0.30	1.95	0.30
87	Centralia, WA	10796	0.25	4.21	0.56
90	San Juan City, NM	9639	0.30	3.00	0.64
91	McKinley City, NM	11309	0.36	2.51	0.54
92	Carbon City, WY	10430	0.25	4.00	0.75
93	Moffat & Routt Cty, CO	10700	0.25	3.10	0.80
94	Sweetwater Cty, WY	9580	0.25	3.00	0.94
95	Powder River Basin, MT	9200	0.25	3.50	0.66
96	Powder River Basin, WY	8400	0.20	2.50	0.79
97	Fort Union Basin, MT	6645	0.30	4.10	0.74
98	Fort Union Basin, ND	6500	0.30	3.20	0.67
99	Denver Basin, CO	9770	0.30	0.87	0.32

Table B6. Minable coal resource base by supply region (base case)—tonnage distributed by sulfur content and average Btu content

Supply Region	Type of Mining (S-Surf. U-Under)	Tonnage Distributed by Sulfur Content								Aver. Btu Cont. (btu/lb*)
		Mill. Tons	Aver. Sulf. Cont. (% by Weight)	Mill. Tons	Aver. Sulf. Cont. (% by Weight)	Mill. Tons	Aver. Sulf. Cont. (% by Weight)	Mill. Tons	Aver. Sulf. Cont. % by Weight)	
3	S	384	0.65	480	0.99	1068	1.73	1068	3.59	13188
	U	1664	0.65	2078	0.99	4629	1.73	4629	3.59	13188
4	S	17	0.64	20	0.99	49	1.79	49	3.85	13214
	U	18	0.64	21	0.99	52	1.79	52	3.85	13214
7	S	29	0.64	105	1.48	105	3.82			13280
	U	59	0.64	212	1.48	212	3.82			13280
8	S	18	0.61	17	1.02	42	1.86	42	4.03	13598
	U	90	0.61	81	1.02	207	1.86	207	4.03	13598
9	S	394	0.50	237	1.01	761	2.01	761	4.70	13505
	U	1640	0.50	987	1.01	3168	2.01	3168	4.70	13505
10	S	18	0.64	21	1.00	69	2.01	69	4.76	13377
	U	43	0.64	50	1.00	166	2.01	166	4.76	13377
11	S	7	0.62	22	1.22	22	2.88			12306
	U	11	0.62	38	1.22	38	2.88			12306
12	S	7	0.72	234	1.48	234	4.01			12284
	U	12	0.72	398	1.48	398	4.01			12284
13	S	878	2.32	878	6.82					11590
	U	1488	2.32	1488	6.82					11590
14	S	1193	2.32	1193	6.82					12197
	U	2311	2.32	2311	6.82					12197
15	S	250	2.32	250	6.82					12237
	U	533	2.32	533	6.82					12237
16	S	872	1.81	872	4.56					13144
	U	13614	1.81	13614	4.56					13144
17	S	440	1.99	440	5.37					13441
	U	3518	1.99	3518	5.37					13441
18	S	29	1.95	29	4.84					12771
	U	209	1.95	209	4.84					12771
19	S	63	1.60	63	3.65					13161
	U	3492	1.60	3492	3.65					13161
20	S	106	1.61	106	4.35					13520
	U	11	0.81	1323	1.61	1323	4.35			13520
21	S	476	0.60	420	1.03	1375	2.05	1375	4.83	13673
	U	2030	0.60	1789	1.03	5858	2.05	5858	4.83	13673
22	S	111	1.64	111	4.47					13251
	U	1105	1.64	1105	4.47					13251
23	S	119	0.61	104	1.03	275	1.90	275	4.17	13714
	U	688	0.61	600	1.03	1583	1.90	1583	4.17	13714
26	S	3326	2.85	3326	4.33					10632
	U	1544	2.85	1544	4.33					10632
27	S	451	2.70	451	6.19					10955
	U	2080	2.70	2080	6.19					10955
28	S	853	3.43	853	4.70					10561
	U	10880	3.43	10880	4.70					10561
29	S	2487	1.56	2487	4.06					11450
	U	9179	1.56	9179	4.06					11450
30	S	339	1.55	339	4.27					11063
	U	3226	1.55	3226	4.27					11063
31	S	437	1.38	437	3.18					12396
	U	5618	1.38	5618	3.18					12396
32	S	397	1.68	397	4.83					11443
	U	1948	1.68	1948	4.83					11443
33	S	665	2.00	665	4.85					11811
	U	5059	2.00	5059	4.85					11811
34	S	1543	2.00	1543	4.85					12215
	U	4980	2.00	4980	4.85					12215
37	S	1118	0.73	1118	1.44					6200
38	S	2014	0.61	2014	1.31					6200
39	S	2612	0.77	2612	1.17					7000
40	S	1112	0.79	1112	1.79					6200
43	S	20	0.65	134	2.02	134	6.17			13488
	U	80	0.65	526	2.02	526	6.17			13488
46	S	17	0.64	96	1.73	96	4.97			13059
	U	31	0.64	174	1.73	174	4.97			13059
47	S	577	2.78	577	8.36					12153
	U	22	2.78	22	8.36					12153
48	S	837	3.17	837	7.05					11623

Table B6. Minable coal resource base by supply region (base case)—tonnage distributed by sulfur content and average Btu content—Continued

Supply Region	Type of Mining (S-Surf. U-Under)	Mill. Tons	Aver. Sulf. Cont. (% by Weight)	Mill. Tons	Aver. Sulf. Cont. (% by Weight)	Mill. Tons	Aver. Sulf. Cont. (% by Weight)	Mill. Tons	Aver. Sulf. Cont. % by Weight)	Aver. Btu Cont. (btu/lb*)
		Tonnage Distributed by Sulfur Content								
	U	94	3.17	94	7.05					11623
49	S	961	3.52	961	6.32					10815
	U	475	3.52	475	6.32					10815
51	S	194	4.91	194	5.09					10471
56	S	159	3.33	159	9.05					9959
	U	598	3.33	598	9.05					9959
57	S	55	0.52	91	0.88	91	1.72			10602
	U	23	0.52	39	0.88	39	1.72			10602
61	U	884	0.56	731	0.94	731	1.61			12332
62	S	111	0.49	114	0.98	114	1.94			11700
	U	985	0.49	1008	0.98	1008	1.94			11700
63	U	667	0.46	266	0.88					10989
66	S	343	0.41	186	0.69	186	1.11			9505
	U	431	0.41	234	0.69	234	1.11			9505
67	S	2931	0.38	4334	0.76	4334	1.60			8572
	U	2929	0.38	4330	0.76	4330	1.60			8572
68	S	320	0.46	817	1.25	817	3.28			10864
	U	299	0.46	764	1.25	764	3.28			10864
70	S	8	0.56	16	1.21	16	2.78			12383
	U	319	0.56	651	1.21	651	2.78			12383
75	S	275	0.49	290	0.79	290	1.40			10258
	U	1981	0.49	2095	0.79	2095	1.40			10258
80	S	226	0.34	952	0.62	952	1.40			6500
87	S	23	0.45	49	1.17	49	2.95			10776
	U	242	0.45	513	1.17	513	2.95			10796
90	S	1620	0.44	3333	0.93	3333	2.14			9639
	U	105	0.44	215	0.93	215	2.14			9639
91	S	203	0.52	267	0.95	267	1.86			11309
	U	31	0.52	41	0.95	41	1.86			11309
92	S	1233	0.44	2622	1.12	2622	2.81			10430
	U	517	0.44	1100	1.12	1100	2.81			10430
93	S	987	0.45	1433	1.00	1433	2.23			10700
	U	1340	0.45	1945	1.00	1945	2.23			10700
94	S	279	0.41	488	0.93	488	2.14			9580
	U	1244	0.41	2177	0.93	2177	2.14			9580
95	S	14706	0.40	34140	0.98	34140	2.46			9200
	U	11332	0.40	26306	0.98	26306	2.46			9200
96A**	S	6789	0.35	10355	0.80	10355	1.79			8400
	U	3683	0.35	5617	0.80	5617	1.79			8400
96B***	S	1975	0.35	3012	0.80	3012	1.79			8400
	U	1071	0.35	1634	0.80	1634	1.79			8400
96C****	S	518	0.35	791	0.80	791	1.79			8400
	U	281	0.35	429	0.80	429	1.79			8400
97	S	238	0.35	2204	0.94	2204	2.79			6645
98	S	954	0.34	7333	0.80	7333	2.21			6500
99	U	680	0.44	224	0.73					9771

*Btu content applies to coal in all sulfur content classes.

**Supply Region 96A is coal from the Wyodak Bed in Campbell County, Wyoming

***Supply Region 96B is coal from beds, other than the Wyodak Bed, in Campbell County, Wyoming.

****Supply Region 96C is coal from beds in Converse County, Wyoming.

Table C1. Acres defined unsuitable by screen #2

Resource Management Area a	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Little Snake (Supply Region 93)	322	0	1,486	0	0	0	0	0	7,541	0	45,898	7,541b	2,402	2,681	37,960	5,104	0	0	1,948c	0
Headwaters Resource Area	0	126d	369d	0	0	0	0	0	0	0	0	0	0	0	1,260d	25d	0	0	0	0
Medicine Bow National Forest and Thunder Basin National Grasslands (Supply Regions 66, 96)	0	1,761	422	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
North Dakota Resource Management Plan (Supply Regions 80, 98)	13,939e	0	43,383f	0	0	0	0	0	0	0	16,239e	0	98	23,943e	107,765e	15,515e	0	0	32,009e	0
Grand Junction Resource Area (Supply Region 62)	0	40	4,100	45,419	0	0	0	0	0	0	0	0	0	0	0	4,100g	10,000	0	0	0
White River Resource Area: Craig District (Supply Regions 62, 63)	0	160	0	0	0	0	3,200	0	1,920	5,480	10,520	1,920	0	2,960	34,370	2,120	0	0	2,190	0

Table C1. Acres defined unsuitable by screen #2—Continued

Resource Management Area[a]	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Salt Wells Area (Supply Region 94)	0	120h	14	0	0	0	640	0	0	0	1,020	0	500	1,100	3,560h	0h	0	0	0	0
Medicine Bow-Divide Resource Management Plan (Supply Region 92)	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0
Rock Springs District (Supply Region 94)	0	84	8	0	0	0	9201	0	0	0	0	0	0	0	0h	0h	0	0	0	0
Farmington Resource Management Area (Supply	0	0	0	0	0	0	360	0	0	0	0	0	724	0	5,683	0	0	0	0	0

aThe citations for each of the documents can be found in the reference list at the end of Table C2.

bThese lands are the same as identified in criterion 9.

cIncludes 1,081 acre overlap with criterion 16.

dEliminated from surface occupancy.

eNo consideration given to overlap among unsuitability criteria.

fCriterion 3 acreages not included in net total because overlap with other criteria is unknown.

gSame acreage as criterion 3.

hAfter exceptions.

iSurface operations and impacts only - coal tonages not affected.

Table C2. Acres removed from consideration for further coal leasing[*]: screens #2, #3, and #4

Resource Management Area	Screen #2 (Unsuitability Criteria)	Screen #3 (Multiple Use)	Screen #4 (Surface Owner Consent)
Headwaters Resource Area (Butte District, Montana), Supply Region 76	1,780	0	0
North Dakota Resource Management (All counties, ND), Supply Regions 80, 98	193,382b	256,099c	131,530
Grand Junction Resource Area (Grand Junction, CO), Supply Region 62	59,919	59,599d	0
White River Resource Area (Craig District, CO), Supply Regions 62, 63	58,845	N/A	1,580
Salt Wells Area (Rock Springs District), Supply Region 94	2,126	0	N/A
Big Sandy Area (Rock Springs District), Supply Regions 69, 94	1,200	160	N/A
Little Snake Resource Area (Craig District, CO), Supply Region 93	104,261	68,808	0
Billings Resource Area, Supply Region 75	120	2,480	10,920
Kremmling Resource Area, Supply Region 63	0	7,190	5,700
Medicine Bow National Forest and Thunder Basin National Grasslands, Supply Regions 66, 96	2,183	0	0
Powder River Resource Area (Miles City District, MT), Supply Region 95	61,615	95,100	98,543
Buffalo Resource Area (Powder River District, WY), Supply Regions 67, 96	145,000	221,000	0
Platte River Resource Area, Supply Regions 66 and 96	4,560	3,443	10,000
Kemmerer-Evanston Resource Area (WY), Supply Region 68	3,281	40	40
Farmington Resource Area, Supply Region 90	6,767	1297	N/A
Rio Puerco Resource Management Plan (Albuquerque District, NM), Supply Region 90	99	0	0
Medicine Bow-Divide Resource Management Plan (Carbon County, Casper Office, WY, Supply Region 92	20	3,420	0

aCaution is urged in the use of the above values. Many of the sources for the information were draft reports and personal communication. Additionally, some values obtained from various resource management reports might be duplicates as suggested by Betsy Daniels of the BLM, Colorado Office. Those individuals that provided specific information are Kit Mueller, Al Stein, Betsy Daniels, and Don Brabson. These values are presented for illustrative purposes and were not utilized in the DCAM analysis.

bCriterion 3 acreages not included in net total because overlap with other criteria is unknown.

cNet.

Table C2. Acres removed from consideration for further coal leasing*: screens #2, #3, and #4—Continued

d14,180 acres along the Colorado River and 45,419 wilderness areas.

*Reference documents for each Resource Area:

U.S. Department of Agriculture, U.S. Forest Service, Land and Resource Management Plan: Draft Environmental Impact Statement, Volume II: Appendices, Medicine Bow National Forest and Thunder Basin National Grassland, WY, 1984-780-842/5037 (Washington, DC: U.S. Government Printing Office), 1984.

U.S. Department of the Interior, Bureau of Land Management, Coal: Wyoming Land Use Decisions, Big Sandy Resource Area, Rock Springs District, Rock Springs, WY (November 1981).

U.S. Department of the Interior, Bureau of Land Management, Coal: Wyoming Land Use Decisions, Salt Wells Resource Area, Rock Springs District, Rock Springs, WY (November 1981).

U.S. Department of the Interior, Bureau of Land Management, Coal Amendment to the White River Resource Area Land Us Plan, Craig District, CO (December 1981).

U.S. Department of the Interior, Bureau of Land Management, Billings Resource Area: Draft Environmental Impact Statement/Resource Management Plan, Billings, MT, 1983-693-052/1 (Washington, DC: U.S. Government Printing Office), April 1983.

U.S. Department of the Interior, Bureau of Land Management, Headwaters Resource Area: Draft Resource Management Plan/Environmental Impact Statement, Butte District, MT, 1983-676-071/57 (Washington, DC: U.S. Government Printing Office), May 1983.

U.S. Department of the Interior, Bureau of Land Management, Headwaters Resource Area: Final Resource Management Plan/Environmental Impact Statement, Butte District, MT, 1983-776-061/1031 (Washington, DC: U.S. Government Printing Office), November 1983.

U.S. Department of the Interior, Bureau of Land Management, Kremmling Resource Area: Draft Resource Management Plan/Environmental Impact Statement, Volumes 1-2, Kremmling Resource Area, CO, 1983-676-071/42 (Washington, DC: U.S. Government Printing Office), 1983.

Table C2. Acres removed from consideration for further coal leasing*: screens #2, #3, and #4—Continued

U.S. Department of the Interior, Bureau of Land Management, Platte River Resource Area: Draft Resource Management Plan/Environmental Impact Statement, Platte River Resource Area, WY, 1984-776-061/1055 (Washington, DC: U.S. Government Printing Office), February 1984.

U.S. Department of the Interior, Bureau of Land Management, Buffalo Resource Area: Draft Resource Management Plan/Environmental Impact Statement, Casper District, WY, 1984-776-061/10000 (Washington, DC: U.S. Government Printing Office), July 1984.

U.S. Department of the Interior, Bureau of Land Management, Platte River Resource Area: Final Resource Management Plan/Environmental Impact Statement, Platte River Resource Area, WY, 1984-776-061/10017 (Washington, DC: U.S. Government Printing Office), November 1984.

U.S. Department of the Interior, Bureau of Land Management, Kremmling Resource Area: Final Resource Management Plan/Environmental Impact Statement, Volume 3, Kremmling Resource Area, CO, 1984-0-776-061/1065 (Washington, DC: U.S. Government Printing Office), 1984.

U.S. Department of the Interior, Bureau of Land Management, Powder River Resource Area Resource Management Plan, Miles City District: Final Environmental Impact Statement, Miles City District, MT, 1984-0-576-070/10025 (Washington, DC: U.S. Government Printing Office) December 1984.

U.S. Department of the Interior, Bureau of Land Management, Buffalo Resource Area: Final Resource Management Plan/Environmental Impact Statement, Casper District, WY, 1985-576-070/10056 (Washington, DC: U.S. Government Printing Office), 1985.

U.S. Department of the Interior, Bureau of Land Management, Grand Junction Resource Area: Draft Resource Management Plan and Environmental Impact Statement , Grand Junction District, CO, 1985-576-070-10042 (Washington, DC: U.S. Government Printing Office), March 1985.

U.S. Department of the Interior, Bureau of Land Management, Rio Puerco Resource Area Draft Resource Management Plan, Albuquerque District, NM, BLM-NM-PT-85-005-4410, March 1985.

Table C2. Acres removed from consideration for further coal leasing*: screens #2, #3, and #4—Continued

U.S. Department of the Interior, Bureau of Land Management, Grand Junction Resource Area: Final Resource Management Plan and Environmental Impact Statement, Grand Junction District, CO, 1985-576-070/20008 (Washington, DC: U.S. Government Printing Office), November 1985.

U.S. Department of the Interior, Bureau of Land Management, Little Snake Draft Resource Management Plan and Environmental Impact Statement, Craig, Colorado District, CO, 1985-676-066/20,005 (Washington, DC: U.S. Government Printing Office), February 1986.

U.S. Department of the Interior, Bureau of Land Management, Little Snake Final Resource Management Plan and Environmental Impact Statement, Craig, Colorado District, CO, 1986-676-066/40008 (Washington, DC: U.S. Government Printing Office), September 1986.

U.S. Department of the Interior, Bureau of Land Management, Rio Puerco Resource Area Final Resource Management Plan, Albuquerque District, NM, BLM-NM-PT-87-002-4410, November 1986.

U.S. Department of the Interior, Bureau of Land Management, North Dakota Draft Resource Management Plan and Environmental Impact Statement, Dickinson District, ND, 1986-773-065/40035 (Washington, DC: U.S. Government Printing Office), December 1986.

U.S. Department of the Interior, Bureau of Land Management, Farmington Resource Area Resource Management Plan Albuquerque District, NM, BLM-NM-PT-87-005-4410, March 1987.

U.S. Department of the Interior, Bureau of Land Management, Medicine Bow/Divide Resource Management Plan: Coal Appendix, April 1987.

U.S. Department of the Interior, Bureau of Land Management, North Dakota Final Resource Management Plan and Environmental Impact Statement, Dickinson District, ND, 1987-773-065/40062 (Washington, DC: U.S. Government Printing Office), July 1987.

U.S. Department of the Interior, Bureau of Land Management, West HiLine: Draft ResourceManagement Plan/Environmental Impact Statement, Lewistown District, MT, 1987-773-065/40059 (Washington, DC: U.S. Government Printing Office), May 1987.

Table C3. Surface minable coal resource base under alternative resource cases for supply regions affected by land-use restrictions (million short tons)

Supply Region	Base Case	Restricted Case	Partially Restricted Case - Unsuitability Criteria Land-Use Restrictions Lifted
67 Sheridan & Johnson Cty, Wyo	11600	9700	11289
68 Rock Springs, Wyo	1954	1950	1950
75 Forsyth, Montana	855	460	465
80 Minot, North Dakota	2130	1360	1640
90 San Juan Cty, New Mexico	8286	8210	8264
91 McKinley Cty, New Mexico	740	740	740
92 Carbon Cty, Wyoming	6478	4300	5940
93 Moffat & Routt Cty, Colo.	3853	3750	3800
94 Sweetwater Cty, Wyoming	1255	1170	1240
95 Powder River, Montana	82985	40200	43466
96 Powder River, Wyoming	37600	26600	30800
Wyodak Bed, Campbell Cty	(27500)**	(18800)	(22100)
Other Beds, Campbell Cty	(8000)	(6100)	(6800)
Converse Cty	(2100)	(1700)	(1900)
98 Fort Union, North Dakota	15620	7900	10700
Total*	173356	106340	120294
National Surface Minable Coal Resources	244501	177489	191443

* For supply regions shown in table
** Parentheses indicate estimates by subregion for the Wyoming portion of the Powder River Basin.

Table D1. Distribution of overburden* ratios for supply regions impacted by coal land restrictions (base case)—surface minable coal**

		Distribution of Overburden Ratios (OBR)							
	Supply Region	OBR feet of overburden/ feet of coal	%	OBR feet of overburden/ feet of coal	%	OBR feet of overburden/ feet of coal	%	OBR feet of overburden/ feet of coal	%
67	Sheridan & Johnson Cty, WY	5	47.0	10	20.0	20	25.0	40	8.0
68	Rock Springs, WY	5	44.0	15	24.0	40	32.0		
75	Forsyth, MT	3	28.0	5	22.0	7	11.0	13	39.0
80	Minot, ND	5	60.0	10	40.0				
90	San Juan Cty, NM	5	15.0	10	25.0	20	35.0	30	25.0
91	McKinley Cty, NM	5	15.0	10	25.0	20	35.0	30	25.0
92	Carbon Cty, WY	5	35.0	10	20.0	25	20.0	35	25.0
93	Moffat & Routt Cty, CO	5	10.0	10	35.0	15	30.0	20	25.0
94	Sweetwater Cty, WY	5	25.0	10	20.0	20	30.0	40	25.0
95	Powder River Basin, MT	3	24.0	4	29.0	5	30.0	8	17.0
96	Powder River Basin, WY								
	Wyodak Bed, Campbell Cty	1	21.0	2	32.0	3	33.0	4	14.0
	Other Beds, Campbell Cty	5	41.2	6	15.3	7	32.0	10	11.5
	Converse Cty	7	35.6	17	45.2	27	19.2		
98	Fort Union, ND	5	60.0	10	40.0				

* Overburden is defined as total material other than subject coal beds

** Estimation of coal mining cost in appendix D requires overburden ratios calculated as cubic yards per ton. Conversion from feet/feet (as shown in this table) to cubic yards/ton gives the same approximate overburden ratio.

Table D2. Deliverable coal resources by supply region (base case)

	Supply Region	Deliverable Coal Resources (million tons)	Mineable Coal Resources* (million tons)	Demonstrated Reserve Base (DRB) (million tons)**
3	Birmingham, AL	8675	16000	2058
4	Jasper, TN	158	278	278
7	Oak Ridge, TN	416	723	723
8	Lebanon, VA	383	706	706
9	Pikeville, KY	6125	11117	11117
10	Middlesboro, KY	335	601	601
11	Beattyville, KY	75	137	137
12	Salyersville, KY	722	1284	1284
13	Pleasantville, OH	2679	4731	4731
14	Cadiz, OH	3970	7009	7009
15	Youngstown, OH	875	1568	1568
16	Pittsburgh, PA	15735	28973	28973
17	Kittanning, PA	4390	7916	7916
18	Sharon, PA	257	476	476
19	State College, PA	3791	7110	7110
20	Somerset, PA	1562	2869	2869
21	Charleston, WV	10648	19182	19182
22	Clarksburg, WV	1313	2432	2432
23	Philippi, WV	2838	5229	5229
26	Peoria, IL	3581	9740	9740
27	Ottawa, IL	2198	5062	5062
28	Taylorsville, IL	10910	23468	23468
29	Mt. Vernon, IL	10240	23331	23331
30	Tuscola, IL	3265	7130	7130
31	Harrisburg, IL	5583	12109	12109
32	Sullivan, IN	2102	4691	4691
33	Morganfield, KY	5860	11448	11448
34	Madisonville, KY	6860	13045	13045
37	Marshall, TX	1808	2237	2237
38	Mt. Pleasant, TX	3227	4027	4027
39	Farfield, TX	4231	5225	5225
40	San Antonio, TX	1801	2224	2224
43	Poteau, OK	685	1421	1421
46	Muskogee, OK	298	587	587
47	Pittsburgh, KS	798	1198	1196
48	Clinton, MO	1218	1862	1862
49	Macon, MO	1727	2872	2872
51	Mound City, KS	250	388	388
56	Albia, IA	852	1513	1513
57	Winston, AZ	740	338	338
61	Raton, NM	1243	2345	2345
62	Gunnison, CO	1846	3339	3339
63	Steamboat Springs, CO	473	933	933
66	Rawlins, WY	914	1615	1615
67	Sheridan & Johnson Cty, WY	14883	23189	12833
68	Rock Springs, WY	2303	3781	2952
70	Price, VT	892	1660	1660
75	Forsyth, MT	3348	7025	667
80	Minot, ND	1628	2130	1201
87	Centralia, WA	581	1389	1389
90	San Juan Cty, NM	6750	8820	2755
91	McKinley Cty, NM	579	849	390
92	Carbon Cty, WY	6328	9195	3239
93	Moffat & Routt Cty, CO	5755	9083	9083
94	Sweetwater Cty, WY	3768	6854	6854
95	Powder River Basin, MT	98341	146929	106462
96	Powder River Basin, WY	39326	57997	42883
97	Fort Union Basin, MT	3591	4646	4646
98	Fort Union, ND	11942	15620	8634
99	Denver Basin, CO	362	904	904
	Total Above Regions	338033	560558	459107
	Total Excluded Regions	7788	12914	12914
	Total U.S.	345821	573472	472021

*From Table B4

**Estimated by distributing 1985 DRB state projections using county-state shares from 1974 DRB file. U.S. DRB total agrees with DOE totals (excluding Alaska) in Coal Production 1985 (U.S. Department of Energy, 1986, Table A3 p. 97).

Table D3. RAMC mining cost equations

A. Variables

R = the maximum overburden ratio, in cubic yards per ton
D = the depth of the seam in feet
T = annual production, in millions of tons per year
C_I = initial capital costs, in millions of 1980 dollars
C_D = deferred capital costs, in millions of 1980 dollars
C_A = annual operating costs, in millions of 1980 dollars

B. Surface Mines

- Contour Strip Mine

$C_I = 0.378(R)(T) + 2.558(T) + 1.289$
$C_D = 0.74(R)(T) + 5.916(T)^{0.881} + 2.132$
$C_A = 0.45(R)(T) + 5.059(T) + 0.613$

- Modified Area Mine

$C_I = 2.181(R)(T) + 2.220(T) + 1.373$
$C_D = 8.022(T) + 4.832$
$C_A = 0.893(R)(T) + 1.216(T)^{0.562} + 2.722(T) + 1.534$

- 600,000 Tons/Year Area Mine

$C_I = 2.026(R)(T) + 2.385(T) + 8.425$
$C_D = 11.935(T) + 13.758$
$C_A = 0.813(R)(T) + 2.44(T)^{0.62} + 3.314(T) + 4.353$

- 3,000,000 Tons/Year Area Mine

$C_I = 2.267(R)(T) + 1.927(T) + 7.415$
$C_D = 3.044(T) + 14.281$
$C_A = 0.911(R)(T) + 1.158(T)^{0.539} + 2.765(T) + 3.943$

- Open Pit Mine

$C_I = 1.294(R)(T) + 3.018(T)^{0.772} + 2.443$
$C_D = 2.708(R)(T) + 1.978(T) + 9.516$
$C_A = 1.005(R)(T) + 1.189(T)^{0.772} + 2.383(T) + 2.209$

C. Underground Mines

- 167,000 Tons/Year Drift Mine

$C_I = 19.64(T) + 0.0103(D)$
$C_D = 29.94(T)$
$C_A = 23.89(T) + 0.001(D)(T)$

- 167,000 Tons/Year Thin-Seam Drift Mine

$C_I = 24.37(T) + 0.0103(D)$
$C_D = 37.13(T)$
$C_A = 28.68(T) + 0.001(D)(T)$

- 500,000 Tons/Year Shaft/Slope Mine

$C_I = 27.06(T) + 0.0103(D)$
$C_D = 28.06(T)$
$C_A = 28.34(T) + 0.001(D)(T)$

- 500,000 Tons/Year Thin-Seam Shaft/Slope Mine:

$C_I = 35.86(T) + 0.0103(D)$
$C_D = 35.48(T)$
$C_A = 35.04(T) + 0.001(D)(T)$

- 500,000 Tons/Year Deep-Seam Shaft/Slope Mine

$C_I = 55.12(T) + 0.0103(D)$
$C_D = 42.48(T)$
$C_A = 44.62(T) + 0.001(D)(T)$

- 1,000,000 Tons/Year Shaft/Slope Mine

$C_I = 23.08(T) + 0.0103(D)$
$C_D = 27.86(T)$
$C_A = 23.28(T) + 0.001(D)(T)$

- 1,000,000 Tons/Year Deep-Seam Shaft/Slope Mine

$C_I = 42.19(T) + 0.0103(D)$
$C_D = 41.57(T)$
$C_A = 35.57(T) + 0.001(D)(T)$

- 1,000,000 Tons/Year Drift Mine

$C_I = 19.67(T) + 0.0103(D)$
$C_D = 29.76(T)$
$C_A = 21.14(T) + 0.001(D)(T)$

Table D4. Regional tonnage-cost schedules (base case): fob mining cost versus deliverable tonnage by sulfur and Btu content

SUP REG	SUPPLY REGION	STEP	MINING COST (1985 $/TON)	TONS (1000)	SULF (% BY WEIGHT)	BTU (BTU/ LB)
3	BIRMINGHAM, AL	1	$38.44	653	1.73	13188
3	BIRMINGHAM, AL	2	$38.44	653	3.59	13188
3	BIRMINGHAM, AL	3	$39.03	164	0.65	13188
3	BIRMINGHAM, AL	4	$39.03	177	0.99	13188
3	BIRMINGHAM, AL	5	$51.69	1386	1.73	13188
3	BIRMINGHAM, AL	6	$51.69	1386	3.59	13188
3	BIRMINGHAM, AL	7	$54.20	235	0.65	13188
3	BIRMINGHAM, AL	8	$54.20	337	0.99	13188
3	BIRMINGHAM, AL	9	$70.95	1527	1.73	13188
3	BIRMINGHAM, AL	10	$70.95	1527	3.59	13188
3	BIRMINGHAM, AL	11	$71.97	284	0.65	13188
3	BIRMINGHAM, AL	12	$71.97	347	0.99	13188
4	JASPER, TN	1	$21.68	1	0.99	13214
4	JASPER, TN	2	$22.00	22	1.79	13214
4	JASPER, TN	3	$22.00	22	3.85	13214
4	JASPER, TN	4	$22.32	7	0.64	13214
4	JASPER, TN	5	$25.58	12	0.99	13214
4	JASPER, TN	6	$25.90	11	1.79	13214
4	JASPER, TN	7	$25.90	11	3.85	13214
4	JASPER, TN	8	$26.99	3	0.64	13214
4	JASPER, TN	9	$38.85	10	0.99	13214
4	JASPER, TN	10	$40.02	9	0.64	13214
4	JASPER, TN	11	$41.19	25	1.79	13214
4	JASPER, TN	12	$41.19	25	3.85	13214
7	OAK RIDGE, TN	1	$30.22	8	0.64	13280
7	OAK RIDGE, TN	2	$30.35	33	1.48	13280
7	OAK RIDGE, TN	3	$30.35	33	3.82	13280
7	OAK RIDGE, TN	4	$38.84	26	0.64	13280
7	OAK RIDGE, TN	5	$39.31	92	1.48	13280
7	OAK RIDGE, TN	6	$39.31	92	3.82	13280
7	OAK RIDGE, TN	7	$65.33	16	0.64	13280
7	OAK RIDGE, TN	8	$76.16	58	1.48	13280
7	OAK RIDGE, TN	9	$76.16	58	3.82	13280
8	LEBANON, VA	1	$28.25	76	1.86	13598
8	LEBANON, VA	2	$28.25	76	4.03	13598
8	LEBANON, VA	3	$28.43	34	0.61	13598
8	LEBANON, VA	4	$28.43	30	1.02	13598
8	LEBANON, VA	5	$35.63	13	1.02	13598
8	LEBANON, VA	6	$35.66	35	1.86	13598
8	LEBANON, VA	7	$35.66	35	4.03	13598
8	LEBANON, VA	8	$35.84	15	0.61	13598
8	LEBANON, VA	9	$51.45	10	1.02	13598
8	LEBANON, VA	10	$52.50	24	1.86	13598
8	LEBANON, VA	11	$52.50	24	4.03	13598
8	LEBANON, VA	12	$54.61	11	0.61	13598
9	PIKEVILLE, KY	1	$24.13	614	0.50	13505
9	PIKEVILLE, KY	2	$24.13	374	1.01	13505
9	PIKEVILLE, KY	3	$24.24	1145	2.01	13505
9	PIKEVILLE, KY	4	$24.24	1145	4.70	13505
9	PIKEVILLE, KY	5	$31.41	646	2.01	13505
9	PIKEVILLE, KY	6	$31.41	646	4.70	13505
9	PIKEVILLE, KY	7	$31.46	336	0.50	13505
9	PIKEVILLE, KY	8	$31.46	197	1.01	13505
9	PIKEVILLE, KY	9	$57.92	375	2.01	13505
9	PIKEVILLE, KY	10	$57.92	375	4.70	13505
9	PIKEVILLE, KY	11	$59.45	170	0.50	13505
9	PIKEVILLE, KY	12	$59.45	103	1.01	13505
10	MIDDLESBORO, KY	1	$26.06	3	0.64	13377
10	MIDDLESBORO, KY	2	$26.06	14	2.01	13377
10	MIDDLESBORO, KY	3	$26.06	14	4.76	13377
10	MIDDLESBORO, KY	4	$26.06	4	1.00	13377
10	MIDDLESBORO, KY	5	$32.96	21	0.64	13377
10	MIDDLESBORO, KY	6	$32.96	81	2.01	13377
10	MIDDLESBORO, KY	7	$32.96	81	4.76	13377
10	MIDDLESBORO, KY	8	$32.96	24	1.00	13377
10	MIDDLESBORO, KY	9	$67.41	10	0.64	13377
10	MIDDLESBORO, KY	10	$76.43	12	1.00	13377
10	MIDDLESBORO, KY	11	$81.05	37	2.01	13377
10	MIDDLESBORO, KY	12	$81.05	37	4.76	13377
11	BEATTYVILLE, KY	1	$23.76	6	1.22	12306
11	BEATTYVILLE, KY	2	$23.76	6	2.88	12306
11	BEATTYVILLE, KY	3	$25.55	2	0.62	12306

Table D4. Regional tonnage-cost schedules (base case): fob mining cost versus deliverable tonnage by sulfur and Btu content—Continued

SUP REG	SUPPLY REGION	STEP	MINING COST (1985 $/TON)	TONS (1000)	SULF (% BY WEIGHT)	BTU (BTU/LB)
11	BEATTYVILLE, KY	4	$32.29	2	0.62	12306
11	BEATTYVILLE, KY	5	$32.29	6	1.22	12306
11	BEATTYVILLE, KY	6	$32.29	6	2.88	12306
11	BEATTYVILLE, KY	7	$43.28	6	0.62	12306
11	BEATTYVILLE, KY	8	$49.04	21	1.22	12306
11	BEATTYVILLE, KY	9	$49.04	21	2.88	12306
12	SALYERSVILLE, KY	1	$22.52	79	1.48	12284
12	SALYERSVILLE, KY	2	$22.52	79	4.01	12284
12	SALYERSVILLE, KY	3	$25.65	2	0.72	12284
12	SALYERSVILLE, KY	4	$28.72	5	0.72	12284
12	SALYERSVILLE, KY	5	$30.52	191	1.48	12284
12	SALYERSVILLE, KY	6	$30.52	191	4.01	12284
12	SALYERSVILLE, KY	7	$35.11	4	0.72	12284
12	SALYERSVILLE, KY	8	$69.46	86	1.48	12284
12	SALYERSVILLE, KY	9	$69.46	86	4.01	12284
13	PLEASANTVILLE, OH	1	$19.83	242	2.32	11590
13	PLEASANTVILLE, OH	2	$19.83	242	6.82	11590
13	PLEASANTVILLE, OH	3	$32.30	263	2.32	11590
13	PLEASANTVILLE, OH	4	$32.30	263	6.82	11590
13	PLEASANTVILLE, OH	5	$54.20	835	2.32	11590
13	PLEASANTVILLE, OH	6	$54.20	835	6.82	11590
14	CADIZ, OH	1	$30.27	326	2.32	12197
14	CADIZ, OH	2	$30.27	326	6.82	12197
14	CADIZ, OH	3	$47.76	485	2.32	12197
14	CADIZ, OH	4	$47.76	485	6.82	12197
14	CADIZ, OH	5	$66.31	1174	2.32	12197
14	CADIZ, OH	6	$66.31	1174	6.82	12197
15	YOUNGSTOWN, OH	1	$22.60	67	2.32	12237
15	YOUNGSTOWN, OH	2	$22.60	67	6.82	12237
15	YOUNGSTOWN, OH	3	$41.96	83	2.32	12237
15	YOUNGSTOWN, OH	4	$41.96	83	6.82	12237
15	YOUNGSTOWN, OH	5	$63.54	287	2.32	12237
15	YOUNGSTOWN, OH	6	$63.54	287	6.82	12237
16	PITTSBURGH, PA	1	$24.24	1215	1.81	13144
16	PITTSBURGH, PA	2	$24.24	1215	4.56	13144
16	PITTSBURGH, PA	3	$38.74	4323	1.81	13144
16	PITTSBURGH, PA	4	$38.74	4323	4.56	13144
16	PITTSBURGH, PA	5	$66.48	2330	1.81	13144
16	PITTSBURGH, PA	6	$66.48	2330	4.56	13144
17	KITTANNING, PA	1	$24.14	859	1.99	13441
17	KITTANNING, PA	2	$24.14	859	5.37	13441
17	KITTANNING, PA	3	$36.01	692	1.99	13441
17	KITTANNING, PA	4	$36.01	692	5.37	13441
17	KITTANNING, PA	5	$53.66	644	1.99	13441
17	KITTANNING, PA	6	$53.66	644	5.37	13441
18	SHARON, PA	1	$34.93	60	1.95	12771
18	SHARON, PA	2	$34.93	60	4.84	12771
18	SHARON, PA	3	$51.35	21	1.95	12771
18	SHARON, PA	4	$51.35	21	4.84	12771
18	SHARON, PA	5	$90.48	47	1.95	12771
18	SHARON, PA	6	$90.48	47	4.84	12771
19	STATE COLLEGE, PA	1	$30.14	1053	1.60	13161
19	STATE COLLEGE, PA	2	$30.14	1053	3.65	13161
19	STATE COLLEGE, PA	3	$47.49	363	1.60	13161
19	STATE COLLEGE, PA	4	$47.49	363	3.65	13161
19	STATE COLLEGE, PA	5	$92.90	479	1.60	13161
19	STATE COLLEGE, PA	6	$92.90	479	3.65	13161
20	SOMERSET, PA	1	$23.11	305	1.61	13520
20	SOMERSET, PA	2	$23.11	305	4.35	13520
20	SOMERSET, PA	3	$31.85	192	1.61	13520
20	SOMERSET, PA	4	$31.85	192	4.35	13520
20	SOMERSET, PA	5	$36.10	3	0.81	13520
20	SOMERSET, PA	6	$45.42	282	1.61	13520
20	SOMERSET, PA	7	$45.42	282	4.35	13520
20	SOMERSET, PA	8	$46.77	1	0.81	13520
21	CHARLESTON, WV	1	$30.25	196	0.60	13673
21	CHARLESTON, WV	2	$30.25	747	2.05	13673
21	CHARLESTON, WV	3	$30.25	747	4.83	13673
21	CHARLESTON, WV	4	$32.80	134	1.03	13673
21	CHARLESTON, WV	5	$39.99	688	0.60	13673
21	CHARLESTON, WV	6	$39.99	1851	2.05	13673
21	CHARLESTON, WV	7	$39.99	1851	4.83	13673
21	CHARLESTON, WV	8	$39.99	627	1.03	13673

Table D4. Regional tonnage-cost schedules (base case): fob mining cost versus deliverable tonnage by sulfur and Btu content—Continued

SUP REG	SUPPLY REGION	STEP	MINING COST (1985 $/TON)	TONS (1000)	SULF (% BY WEIGHT)	BTU (BTU/LB)
21	CHARLESTON, WV	9	$53.31	1418	2.05	13673
21	CHARLESTON, WV	10	$53.31	1418	4.83	13673
21	CHARLESTON, WV	11	$58.24	506	0.60	13673
21	CHARLESTON, WV	12	$65.41	465	1.03	13673
22	CLARKSBURG, WV	1	$26.83	394	1.64	13251
22	CLARKSBURG, WV	2	$26.83	394	4.47	13251
22	CLARKSBURG, WV	3	$45.78	93	1.64	13251
22	CLARKSBURG, WV	4	$45.78	93	4.47	13251
22	CLARKSBURG, WV	5	$82.42	169	1.64	13251
22	CLARKSBURG, WV	6	$82.42	169	4.47	13251
23	PHILIPPI, WV	1	$26.55	207	1.03	13714
23	PHILIPPI, WV	2	$26.73	243	0.61	13714
23	PHILIPPI, WV	3	$26.73	505	1.90	13714
23	PHILIPPI, WV	4	$26.73	505	4.17	13714
23	PHILIPPI, WV	5	$39.84	72	1.03	13714
23	PHILIPPI, WV	6	$40.86	99	0.61	13714
23	PHILIPPI, WV	7	$40.86	287	1.90	13714
23	PHILIPPI, WV	8	$40.86	287	4.17	13714
23	PHILIPPI, WV	9	$64.12	96	0.61	13714
23	PHILIPPI, WV	10	$64.12	218	1.90	13714
23	PHILIPPI, WV	11	$64.12	218	4.17	13714
23	PHILIPPI, WV	12	$64.13	102	1.03	13714
26	PEORIA, IL	1	$30.70	452	2.85	10632
26	PEORIA, IL	2	$30.70	452	4.33	10632
26	PEORIA, IL	3	$39.53	508	2.85	10632
26	PEORIA, IL	4	$39.53	508	4.33	10632
26	PEORIA, IL	5	$45.55	830	2.85	10632
26	PEORIA, IL	6	$45.55	830	4.33	10632
27	OTTAWA, IL	1	$39.66	389	2.70	10995
27	OTTAWA, IL	2	$39.66	389	6.19	10995
27	OTTAWA, IL	3	$44.03	306	2.70	10995
27	OTTAWA, IL	4	$44.03	306	6.19	10995
27	OTTAWA, IL	5	$60.81	404	2.70	10995
27	OTTAWA, IL	6	$60.81	404	6.19	10995
28	TAYLORVILLE, IL	1	$32.58	1825	3.43	10561
28	TAYLORVILLE, IL	2	$32.58	1825	4.70	10561
28	TAYLORVILLE, IL	3	$38.00	1793	3.43	10561
28	TAYLORVILLE, IL	4	$38.00	1793	4.70	10561
28	TAYLORVILLE, IL	5	$49.01	1836	3.43	10561
28	TAYLORVILLE, IL	6	$49.01	1836	4.70	10561
29	MT. VERNON, IL	1	$25.93	1045	1.56	11450
29	MT. VERNON, IL	2	$25.93	1045	4.06	11450
29	MT. VERNON, IL	3	$30.94	1465	1.56	11450
29	MT. VERNON, IL	4	$30.94	1465	4.06	11450
29	MT. VERNON, IL	5	$42.35	2610	1.56	11450
29	MT. VERNON, IL	6	$42.35	2610	4.06	11450
30	TUSCOLA, IL	1	$27.73	250	1.55	11063
30	TUSCOLA, IL	2	$27.73	250	4.27	11063
30	TUSCOLA, IL	3	$31.58	594	1.55	11063
30	TUSCOLA, IL	4	$31.58	594	4.27	11063
30	TUSCOLA, IL	5	$39.54	789	1.55	11063
30	TUSCOLA, IL	6	$39.54	789	4.27	11063
31	HARRISBURG, IL	1	$30.64	662	1.38	12396
31	HARRISBURG, IL	2	$30.64	662	3.18	12396
31	HARRISBURG, IL	3	$39.59	745	1.38	12396
31	HARRISBURG, IL	4	$39.59	745	3.18	12396
31	HARRISBURG, IL	5	$51.10	1386	1.38	12396
31	HARRISBURG, IL	6	$51.10	1386	3.18	12396
32	SULLIVAN, IN	1	$23.26	198	1.68	11443
32	SULLIVAN, IN	2	$23.26	198	4.83	11443
32	SULLIVAN, IN	3	$30.11	345	1.68	11443
32	SULLIVAN, IN	4	$30.11	345	4.83	11443
32	SULLIVAN, IN	5	$41.13	508	1.68	11443
32	SULLIVAN, IN	6	$41.13	508	4.83	11443
33	MORGANFIELD, KY	1	$24.50	901	2.00	11811
33	MORGANFIELD, KY	2	$24.50	901	4.85	11811
33	MORGANFIELD, KY	3	$31.27	390	2.00	11811
33	MORGANFIELD, KY	4	$31.27	390	4.85	11811
33	MORGANFIELD, KY	5	$40.75	1640	2.00	11811
33	MORGANFIELD, KY	6	$40.75	1640	4.85	11811
34	MADISONVILLE, KY	1	$26.10	937	2.00	12215
34	MADISONVILLE, KY	2	$26.10	937	4.85	12215
34	MADISONVILLE, KY	3	$34.37	849	2.00	12215
34	MADISONVILLE, KY	4	$34.37	849	4.85	12215

Table D4. Regional tonnage-cost schedules (base case): fob mining cost versus deliverable tonnage by sulfur and Btu content—Continued

SUP REG	SUPPLY REGION	STEP	MINING COST (1985 $/TON)	TONS (1000)	SULF- (% BY WEIGHT)	BTU (BTU/ LB)
34	MADISONVILLE, KY	5	$54.58	1643	2.00	12215
34	MADISONVILLE, KY	6	$54.58	1643	4.85	12215
37	MARSHALL, TX	1	$11.92	147	0.73	6200
37	MARSHALL, TX	2	$11.92	147	1.44	6200
37	MARSHALL, TX	3	$16.40	274	0.73	6200
37	MARSHALL, TX	4	$16.40	274	1.44	6200
37	MARSHALL, TX	5	$22.52	483	0.73	6200
37	MARSHALL, TX	6	$22.52	483	1.44	6200
38	MT. PLEASANT, TX	1	$11.80	384	0.61	6200
38	MT. PLEASANT, TX	2	$11.80	384	1.31	6200
38	MT. PLEASANT, TX	3	$17.88	342	0.61	6200
38	MT. PLEASANT, TX	4	$17.88	342	1.31	6200
38	MT. PLEASANT, TX	5	$32.93	888	0.61	6200
38	MT. PLEASANT, TX	6	$32.93	888	1.31	6200
39	FAIRFIELD, TX	1	$13.02	367	0.77	7000
39	FAIRFIELD, TX	2	$13.02	367	1.17	7000
39	FAIRFIELD, TX	3	$21.10	584	0.77	7000
39	FAIRFIELD, TX	4	$21.10	584	1.17	7000
39	FAIRFIELD, TX	5	$36.36	1164	0.77	7000
39	FAIRFIELD, TX	6	$36.36	1164	1.17	7000
40	SAN ANTONIO, TX	1	$12.22	161	0.79	6200
40	SAN ANTONIO, TX	2	$12.22	161	1.79	6200
40	SAN ANTONIO, TX	3	$19.14	200	0.79	6200
40	SAN ANTONIO, TX	4	$19.14	200	1.79	6200
40	SAN ANTONIO, TX	5	$29.59	540	0.79	6200
40	SAN ANTONIO, TX	6	$29.59	540	1.79	6200
43	POTEAU, OK	1	$23.93	51	2.02	13488
43	POTEAU, OK	2	$23.93	51	6.17	13488
43	POTEAU, OK	3	$30.05	11	0.65	13488
43	POTEAU, OK	4	$33.71	100	2.02	13488
43	POTEAU, OK	5	$33.71	100	6.17	13488
43	POTEAU, OK	6	$34.67	10	0.65	13488
43	POTEAU, OK	7	$45.90	170	2.02	13488
43	POTEAU, OK	8	$45.90	170	6.17	13488
43	POTEAU, OK	9	$55.53	25	0.65	13488
46	MUSKOGEE, OK	1	$36.97	47	1.73	13059
46	MUSKOGEE, OK	2	$36.97	47	4.97	13059
46	MUSKOGEE, OK	3	$38.05	7	0.64	13059
46	MUSKOGEE, OK	4	$55.18	4	0.64	13059
46	MUSKOGEE, OK	5	$56.80	18	1.73	13059
46	MUSKOGEE, OK	6	$56.80	18	4.97	13059
46	MUSKOGEE, OK	7	$81.11	73	1.73	13059
46	MUSKOGEE, OK	8	$81.11	73	4.97	13059
46	MUSKOGEE, OK	9	$83.80	10	0.64	13059
47	PITTSBURGH, KS	1	$24.23	112	2.78	12153
47	PITTSBURGH, KS	2	$24.23	112	8.36	12153
47	PITTSBURGH, KS	3	$30.30	114	2.78	12153
47	PITTSBURGH, KS	4	$30.30	114	8.36	12153
47	PITTSBURGH, KS	5	$64.80	173	2.78	12153
47	PITTSBURGH, KS	6	$64.80	173	8.36	12153
48	CLINTON, MO	1	$24.89	249	3.17	11623
48	CLINTON, MO	2	$24.89	249	7.05	11623
48	CLINTON, MO	3	$50.56	183	3.17	11623
48	CLINTON, MO	4	$50.56	183	7.05	11623
48	CLINTON, MO	5	$82.84	177	3.17	11623
48	CLINTON, MO	6	$82.84	177	7.05	11623
49	MACON, MO	1	$29.84	287	3.52	10815
49	MACON, MO	2	$29.84	287	6.32	10815
49	MACON, MO	3	$54.56	244	3.52	10815
49	MACON, MO	4	$54.56	244	6.32	10815
49	MACON, MO	5	$80.42	333	3.52	10815
49	MACON, MO	6	$80.42	333	6.32	10815
51	MOUND CITY, KS	1	$26.60	37	4.91	10471
51	MOUND CITY, KS	2	$26.60	37	5.09	10471
51	MOUND CITY, KS	3	$35.12	87	4.91	10471
51	MOUND CITY, KS	4	$35.12	87	5.09	10471
56	ALBIA, IA	1	$22.65	21	3.33	9959
56	ALBIA, IA	2	$22.65	21	9.05	9959
56	ALBIA, IA	3	$26.94	113	3.33	9959
56	ALBIA, IA	4	$26.94	113	9.05	9959
56	ALBIA, IA	5	$39.55	292	3.33	9959
56	ALBIA, IA	6	$39.55	292	9.05	9959
57	WINSLOW, AZ	1	$16.69	102	0.88	10602

Table D4. Regional tonnage-cost schedules (base case): fob mining cost versus deliverable tonnage by sulfur and Btu content—Continued

SUP REG	SUPPLY REGION	STEP	MINING COST (1985 $/TON)	TONS (1000)	SULF (% BY WEIGHT)	BTU (BTU/ LB)
57	WINSLOW, AZ	2	$16.69	102	1.72	10602
57	WINSLOW, AZ	3	$18.71	67	0.88	10602
57	WINSLOW, AZ	4	$18.71	67	1.72	10602
57	WINSLOW, AZ	5	$18.93	67	0.52	10602
57	WINSLOW, AZ	6	$24.11	67	0.52	10602
57	WINSLOW, AZ	7	$29.31	134	0.88	10602
57	WINSLOW, AZ	8	$29.31	134	1.72	10602
61	RATON, NM	1	$31.54	132	0.56	12332
61	RATON, NM	2	$31.54	118	0.94	12332
61	RATON, NM	3	$31.54	118	1.61	12332
61	RATON, NM	4	$35.44	152	0.56	12332
61	RATON, NM	5	$35.44	122	0.94	12332
61	RATON, NM	6	$35.44	122	1.61	12332
61	RATON, NM	7	$43.43	189	0.56	12332
61	RATON, NM	8	$43.43	145	0.94	12332
61	RATON, NM	9	$43.43	145	1.61	12332
62	GUNNISON, CO	1	$25.24	8	0.49	11700
62	GUNNISON, CO	2	$25.24	8	0.98	11700
62	GUNNISON, CO	3	$25.24	8	1.94	11700
62	GUNNISON, CO	4	$32.11	276	0.49	11700
62	GUNNISON, CO	5	$32.11	286	0.98	11700
62	GUNNISON, CO	6	$32.11	286	1.94	11700
62	GUNNISON, CO	7	$39.87	321	0.49	11700
62	GUNNISON, CO	8	$39.87	327	0.98	11700
62	GUNNISON, CO	9	$39.87	327	1.94	11700
63	STEAMBOAT SPRINGS, CO	1	$43.93	222	0.46	10989
63	STEAMBOAT SPRINGS, CO	2	$50.50	131	0.88	10989
63	STEAMBOAT SPRINGS, CO	3	$77.87	120	0.46	10989
66	RAWLINS, WY	1	$18.34	21	0.69	9505
66	RAWLINS, WY	2	$18.34	21	1.11	9505
66	RAWLINS, WY	3	$18.77	89	0.41	9505
66	RAWLINS, WY	4	$23.56	108	0.69	9505
66	RAWLINS, WY	5	$23.56	108	1.11	9505
66	RAWLINS, WY	6	$26.00	165	0.41	9505
66	RAWLINS, WY	7	$33.11	105	0.69	9505
66	RAWLINS, WY	8	$33.11	105	1.11	9505
66	RAWLINS, WY	9	$42.17	193	0.41	9505
67	SHERIDAN & JOHNSON CTY, WY	1	$20.13	1009	0.38	8572
67	SHERIDAN & JOHNSON CTY, WY	2	$20.13	1547	0.76	8572
67	SHERIDAN & JOHNSON CTY, WY	3	$20.13	1547	1.60	8572
67	SHERIDAN & JOHNSON CTY, WY	4	$23.84	514	0.38	8572
67	SHERIDAN & JOHNSON CTY, WY	5	$25.86	1511	0.76	8572
67	SHERIDAN & JOHNSON CTY, WY	6	$25.86	1511	1.60	8572
67	SHERIDAN & JOHNSON CTY, WY	7	$36.44	2238	0.38	8572
67	SHERIDAN & JOHNSON CTY, WY	8	$51.14	2504	0.76	8572
67	SHERIDAN & JOHNSON CTY, WY	9	$51.14	2504	1.60	8572
68	ROCK SPRINGS, WY	1	$24.70	96	0.46	10864
68	ROCK SPRINGS, WY	2	$26.41	353	1.25	10864
68	ROCK SPRINGS, WY	3	$26.41	353	3.28	10864
68	ROCK SPRINGS, WY	4	$35.80	70	0.46	10864
68	ROCK SPRINGS, WY	5	$39.40	173	1.25	10864
68	ROCK SPRINGS, WY	6	$39.40	173	3.28	10864
68	ROCK SPRINGS, WY	7	$63.87	462	1.25	10864
68	ROCK SPRINGS, WY	8	$63.87	462	3.28	10864
68	ROCK SPRINGS, WY	9	$68.52	161	0.46	10864
70	PRICE, UT	1	$26.78	33	0.56	12383
70	PRICE, UT	2	$26.78	66	1.21	12383
70	PRICE, UT	3	$26.78	66	2.78	12383
70	PRICE, UT	4	$29.19	92	0.56	12383
70	PRICE, UT	5	$38.41	263	1.21	12383
70	PRICE, UT	6	$38.41	263	2.78	12383
70	PRICE, UT	7	$71.51	51	0.56	12383
70	PRICE, UT	8	$71.51	30	1.21	12383
70	PRICE, UT	9	$71.51	30	2.78	12383
75	FORSYTH, MT	1	$24.06	48	0.49	10258
75	FORSYTH, MT	2	$24.06	51	0.79	10258
75	FORSYTH, MT	3	$24.06	51	1.40	10258
75	FORSYTH, MT	4	$24.89	57	0.49	10258
75	FORSYTH, MT	5	$24.89	60	0.79	10258
75	FORSYTH, MT	6	$24.89	60	1.40	10258
75	FORSYTH, MT	7	$54.58	944	0.49	10258
75	FORSYTH, MT	8	$54.58	1038	0.79	10258
75	FORSYTH, MT	9	$54.58	1038	1.40	10258

Table D4. Regional tonnage-cost schedules (base case): fob mining cost versus deliverable tonnage by sulfur and Btu content—Continued

SUP REG	SUPPLY REGION	STEP	MINING COST (1985 $/TON)	TONS (1000)	SULF (% BY WEIGHT)	BTU (BTU/ LB)
80	MINOT, ND	1	$7.12	174	0.62	6500
80	MINOT, ND	2	$7.12	174	1.40	6500
80	MINOT, ND	3	$12.58	240	0.62	6500
80	MINOT, ND	4	$12.58	240	1.40	6500
80	MINOT, ND	5	$15.65	78	0.34	6500
80	MINOT, ND	6	$18.90	51	0.34	6500
80	MINOT, ND	7	$25.74	313	0.62	6500
80	MINOT, ND	8	$25.74	313	1.40	6500
80	MINOT, ND	9	$27.40	44	0.34	6500
87	CENTRALIA, WA	1	$25.38	4	0.45	10796
87	CENTRALIA, WA	2	$26.14	32	1.17	10796
87	CENTRALIA, WA	3	$26.14	32	2.95	10796
87	CENTRALIA, WA	4	$26.60	11	0.45	10796
87	CENTRALIA, WA	5	$40.83	8	1.17	10796
87	CENTRALIA, WA	6	$40.83	8	2.95	10796
87	CENTRALIA, WA	7	$55.11	64	0.45	10796
87	CENTRALIA, WA	8	$55.78	211	1.17	10796
87	CENTRALIA, WA	9	$55.78	211	2.95	10796
90	SAN JUAN CTY, NM	1	$16.16	290	0.44	9639
90	SAN JUAN CTY, NM	2	$16.16	575	0.93	9639
90	SAN JUAN CTY, NM	3	$16.16	575	2.14	9639
90	SAN JUAN CTY, NM	4	$24.08	300	0.44	9639
90	SAN JUAN CTY, NM	5	$24.08	770	0.93	9639
90	SAN JUAN CTY, NM	6	$24.08	770	2.14	9639
90	SAN JUAN CTY, NM	7	$38.65	714	0.44	9639
90	SAN JUAN CTY, NM	8	$38.65	1379	0.93	9639
90	SAN JUAN CTY, NM	9	$38.65	1379	2.14	9639
91	MCKINLEY CTY, NM	1	$26.27	25	0.52	11309
91	MCKINLEY CTY, NM	2	$26.27	50	0.95	11309
91	MCKINLEY CTY, NM	3	$26.27	50	1.86	11309
91	MCKINLEY CTY, NM	4	$31.52	72	0.52	11309
91	MCKINLEY CTY, NM	5	$31.52	72	0.95	11309
91	MCKINLEY CTY, NM	6	$31.52	72	1.86	11309
91	MCKINLEY CTY, NM	7	$41.85	58	0.52	11309
91	MCKINLEY CTY, NM	8	$41.85	90	0.95	11309
91	MCKINLEY CTY, NM	9	$41.85	90	1.86	11309
92	CARBON CTY, WY	1	$23.40	418	0.44	10430
92	CARBON CTY, WY	2	$24.18	911	1.12	10430
92	CARBON CTY, WY	3	$24.18	911	2.81	10430
92	CARBON CTY, WY	4	$33.31	192	0.44	10430
92	CARBON CTY, WY	5	$34.09	383	1.12	10430
92	CARBON CTY, WY	6	$34.09	383	2.81	10430
92	CARBON CTY, WY	7	$53.03	583	0.44	10430
92	CARBON CTY, WY	8	$53.46	1273	1.12	10430
92	CARBON CTY, WY	9	$53.46	1273	2.81	10430
93	MOFFAT & ROUTT CTY, CO	1	$19.49	535	1.00	10700
93	MOFFAT & ROUTT CTY, CO	2	$19.49	535	2.23	10700
93	MOFFAT & ROUTT CTY, CO	3	$19.70	333	0.45	10700
93	MOFFAT & ROUTT CTY, CO	4	$23.57	461	1.00	10700
93	MOFFAT & ROUTT CTY, CO	5	$23.57	461	2.23	10700
93	MOFFAT & ROUTT CTY, CO	6	$24.24	440	0.45	10700
93	MOFFAT & ROUTT CTY, CO	7	$31.05	1149	1.00	10700
93	MOFFAT & ROUTT CTY, CO	8	$31.05	1149	2.23	10700
93	MOFFAT & ROUTT CTY, CO	9	$32.20	692	0.45	10700
94	SWEETWATER CTY, WY	1	$30.60	276	0.93	9580
94	SWEETWATER CTY, WY	2	$30.60	276	2.14	9580
94	SWEETWATER CTY, WY	3	$33.06	156	0.41	9580
94	SWEETWATER CTY, WY	4	$40.02	363	0.93	9580
94	SWEETWATER CTY, WY	5	$40.02	363	2.14	9580
94	SWEETWATER CTY, WY	6	$42.72	211	0.41	9580
94	SWEETWATER CTY, WY	7	$47.52	483	0.41	9580
94	SWEETWATER CTY, WY	8	$49.64	821	0.93	9580
94	SWEETWATER CTY, WY	9	$49.64	821	2.14	9580
95	POWDER RIVER BASIN, MT	1	$10.18	5233	0.40	9200
95	POWDER RIVER BASIN, MT	2	$10.26	11792	0.98	9200
95	POWDER RIVER BASIN, MT	3	$10.26	11792	2.46	9200
95	POWDER RIVER BASIN, MT	4	$14.68	5174	0.40	9200
95	POWDER RIVER BASIN, MT	5	$15.05	13508	0.98	9200
95	POWDER RIVER BASIN, MT	6	$15.05	13508	2.46	9200
95	POWDER RIVER BASIN, MT	7	$32.75	6933	0.40	9200
95	POWDER RIVER BASIN, MT	8	$32.75	15201	0.98	9200
95	POWDER RIVER BASIN, MT	9	$32.75	15201	2.46	9200
96	POWDER RIVER BASIN, WY	1	$6.08	2378	0.35	8400
96	POWDER RIVER BASIN, WY	2	$6.23	4758	0.80	8400

Table D4. Regional tonnage-cost schedules (base case): fob mining cost versus deliverable tonnage by sulfur and Btu content—Continued

SUP REG	SUPPLY REGION	STEP	MINING COST (1985 $/TON)	TONS ('1000)	SULF (% BY WEIGHT)	BTU (BTU/ LB)
96	POWDER RIVER BASIN, WY	3	$6.23	4758	1.79	8400
96	POWDER RIVER BASIN, WY	4	$10.02	2582	0.35	8400
96	POWDER RIVER BASIN, WY	5	$10.48	2850	0.80	8400
96	POWDER RIVER BASIN, WY	6	$10.48	2850	1.79	8400
96	POWDER RIVER BASIN, WY	7	$10.71	213	0.80	8400
96	POWDER RIVER BASIN, WY	8	$10.71	213	1.79	8400
96	POWDER RIVER BASIN, WY	9	$11.51	125	0.35	8400
96	POWDER RIVER BASIN, WY	10	$15.19	223	0.80	8400
96	POWDER RIVER BASIN, WY	11	$15.19	223	1.79	8400
96	POWDER RIVER BASIN, WY	12	$17.53	195	0.35	8400
96	POWDER RIVER BASIN, WY	13	$17.60	1378	0.80	8400
96	POWDER RIVER BASIN, WY	14	$17.60	1378	1.79	8400
96	POWDER RIVER BASIN, WY	15	$17.77	732	0.35	8400
96	POWDER RIVER BASIN, WY	16	$23.78	822	0.80	8400
96	POWDER RIVER BASIN, WY	17	$23.78	822	1.79	8400
96	POWDER RIVER BASIN, WY	18	$25.41	2170	0.35	8400
96	POWDER RIVER BASIN, WY	19	$25.41	3376	0.80	8400
96	POWDER RIVER BASIN, WY	20	$25.41	3376	1.79	8400
96	POWDER RIVER BASIN, WY	21	$27.66	721	0.35	8400
96	POWDER RIVER BASIN, WY	22	$32.78	339	0.80	8400
96	POWDER RIVER BASIN, WY	23	$32.78	339	1.79	8400
96	POWDER RIVER BASIN, WY	24	$35.53	161	0.35	8400
96	POWDER RIVER BASIN, WY	25	$36.29	544	0.35	8400
96	POWDER RIVER BASIN, WY	26	$36.29	900	0.80	8400
96	POWDER RIVER BASIN, WY	27	$36.29	900	1.79	8400
97	FORT UNION, MT	1	$14.26	42	0.35	6645
97	FORT UNION, MT	2	$14.26	407	0.94	6645
97	FORT UNION, MT	3	$14.26	407	2.79	6645
97	FORT UNION, MT	4	$14.94	54	0.35	6645
97	FORT UNION, MT	5	$14.94	497	0.94	6645
97	FORT UNION, MT	6	$14.94	497	2.79	6645
97	FORT UNION, MT	7	$18.04	84	0.35	6645
97	FORT UNION, MT	8	$18.04	802	0.94	6645
97	FORT UNION, MT	9	$18.04	802	2.79	6645
98	FORT UNION, ND	1	$7.02	1637	0.80	6500
98	FORT UNION, ND	2	$7.02	1637	2.21	6500
98	FORT UNION, ND	3	$8.15	179	0.34	6500
98	FORT UNION, ND	4	$9.07	1327	0.80	6500
98	FORT UNION, ND	5	$9.07	1327	2.21	6500
98	FORT UNION, ND	6	$10.37	266	0.34	6500
98	FORT UNION, ND	7	$14.24	2645	0.80	6500
98	FORT UNION, ND	8	$14.24	2645	2.21	6500
98	FORT UNION, ND	9	$15.82	280	0.34	6500
99	DENVER BASIN, CO	1	$34.60	30	0.73	9771
99	DENVER BASIN, CO	2	$34.83	121	0.44	9771
99	DENVER BASIN, CO	3	$35.29	30	0.73	9771
99	DENVER BASIN, CO	4	$39.73	181	0.44	9771

Table E1. SO_x discharge limits for coal-fired boilers

A. Electric Utility Boilers

State Implementation Plans (SIP) Standards

- Boilers with construction start-up dates earlier than August 1971 are required to meet SIP standards set by individual states. SIPs are established by States to meet national ambient air quality standards set in the Federal Clean Air Act. SIP standards vary by State and by boiler within State.

- Any method of compliance is allowed, including low-sulfur coal, SOX scrubbing, and combinations thereof.

New Source Performance Standards (NSPS)

- Boilers with construction start-up dates after August 1971 and before October 1978 are required to meet a Federal SOX discharge standard of 1.2 lbs of SO_2 per million btu heat input. Any method of compliance is allowed, including low-sulfur coal, SOX scrubbing, and combinations thereof.

Revised New Source Performance Standards (RNSPS)

- Boilers with construction start-up dates after October 1978 are required by Federal Regulation to apply flue gas desulfurization technology (currently SOX scurbbing) to remove a minimum of 70% of SO_2 from the boiler flue gas. Scrubbing at less than 90% (but no less than at 70%) is allowed if a discharge standard of 0.6 lbs of SO_2s per million btu heat input can be met. If the scrubbing removal level is 90% or higher, boilers are allowed to discharge 1.2 lbs of SO_2 per million btu heat input.

B. Industrial Boilers

State Implementation Plan (SIP) Standards

- Boilers on-line prior to 1985 are required to meet SIP standards set by individual states.

- Small boilers (heat input not more than 25,000 tons of coal per year containing 24 million btu per ton) are required to meet SIP standards in all years. Applies to small boilers on-line prior to 1985 and small boilers on-line after 1985.

New Source Performance Standards (NSPS)

- Large boilers, on line after 1985, are required to meet a Federal SOX discharge standard of 1.2 lbs of SO_2 per million btu heat input. Large boilers are defined as boilers with a heat input greater than 25,000 tons of coal per year containing 24 million btu per ton. Any method of compliance is allowed, including low sulfur coal, SOX scrubbing, and combinations thereof.

Table E2. Cost factors for estimating SO_x scrubbing costs

Coal Type	% of Gas Flow Stream Treated	0 lbs of SOX per Million Btu Scrubbed Out	2 lbs of SOX per Million Btu Scrubbed Out	4 lbs of SOX per Million Btu Scrubbed Out	6 lbs of SOX per Million Btu Scrubbed Out	8 lbs of SOX per Million Btu Scrubbed Out	9 lbs of SOX per Million Btu Scrubbed Out
		Capital Costs (1985 mills/kwh)					
Bit.	80	4.05	4.22	4.39	4.53	4.65	4.72
Bit.	90	4.48	4.67	4.86	5.02	5.17	5.26
Bit.	100	5.00	5.21	5.41	5.57	5.74	5.83
Subbit.	80	4.10	4.27	4.45	4.58	4.71	4.77
Subbit.	90	4.57	4.74	4.91	5.07	5.22	5.31
Subbit.	100	5.09	5.28	5.47	5.64	5.80	5.88
Lig.	80	4.20	4.38	4.55	4.71	4.84	4.91
Lig.	90	4.81	5.00	5.19	5.35	5.48	5.55
Lig.	100	5.22	5.43	5.64	5.80	5.97	6.05
		Operating and Maintenance Cost (1985 mills/kwh)					
Bit.	80	2.25	2.87	3.49	4.10	4.71	5.02
Bit.	90	2.44	3.15	3.86	4.53	5.22	5.57
Bit.	100	2.68	3.48	4.27	5.05	5.76	6.12
Subbit.	80	2.25	2.89	3.53	4.13	4.74	5.05
Subbit.	90	2.47	3.18	3.89	4.58	5.26	5.61
Subbit.	100	2.73	3.51	4.29	5.05	5.81	6.19
Lig.	80	2.32	2.96	3.60	4.22	4.84	5.16
Lig.	90	2.61	3.32	4.03	4.74	5.43	5.96
Lig.	100	2.84	3.62	4.39	5.17	5.95	6.35
		Capacity Penalty (% Generating Capacity Derated)					
Bit.	80	2.09	2.12	2.15	2.17	2.19	2.20
Bit.	90	2.37	2.39	2.41	2.44	2.47	2.49
Bit.	100	2.65	2.65	2.62	2.62	2.74	2.80
Subbit.	80	2.13	2.16	2.19	2.21	2.24	2.25
Subbit.	90	2.40	2.43	2.46	2.49	2.51	2.53
Subbit.	100	2.67	2.70	2.73	2.76	2.79	2.81
Lig.	80	2.25	2.27	2.29	2.32	2.34	2.35
Lig.	90	2.52	2.55	2.58	2.61	2.63	2.65
Lig.	100	2.81	2.84	2.87	2.90	2.93	2.95
		Energy Penalty (% of Generating Unit Output Used by Scrubber)					
Bit.	80	2.56	2.55	2.57	2.60	2.62	2.63
Bit.	90	3.40	3.43	3.46	3.48	3.51	3.53
Bit.	100	4.26	4.2226	4.23	4.23	4.35	4.35
Subbit.	80	2.58	2.60	2.62	2.65	2.67	2.68
Subbit.	90	3.46	3.49	3.52	3.55	3.57	3.58
Subbit.	100	4.30	4.33	4.36	4.39	4.42	4.44
Lig.	80	2.25	2.77	2.80	2.82	2.85	2.87
Lig.	90	3.63	3.65	3.67	3.70	3.73	3.75
Lig.	100	4.49	4.52	4.55	4.58	4.61	4.63

Table E3. SO_x scrubbing costs for each step on the coal resource tonnage-cost schedule

SUP REG #	SUPPLY REGION	STEP	LO NSPS DIS (LBS SOX/ MILL BTU)	LO NSPS REM LEVEL (%)	LO CST (1985 $/TON)	HI NSPS DIS (LBS SOX/ MILL BTU)	HI NSPS REM LEVEL (%)	HI CST (1985 $/TON)	RNSPS DIS (LBS SOX/ MILL BTU)	RNSPS REM LEVEL (%)	RNSPS CST (1985 $/TON)
3	BIRMINGHAM, AL	1	0.58	78.0	$30.97	0.30	90.0	$35.43	0.58	78.0	$30.97
3	BIRMINGHAM, AL	2	0.60	89.0	$39.01	0.50	90.0	$39.08	0.60	89.0	$39.01
3	BIRMINGHAM, AL	3	0.30	70.0	$25.67	0.10	90.0	$33.24	0.30	70.0	$25.67
3	BIRMINGHAM, AL	4	0.45	70.0	$26.11	0.20	90.0	$33.93	0.45	70.0	$26.11
3	BIRMINGHAM, AL	5	0.58	78.0	$30.97	0.30	90.0	$35.43	0.58	78.0	$30.97
3	BIRMINGHAM, AL	6	0.60	89.0	$39.01	0.50	90.0	$39.08	0.60	89.0	$39.01
3	BIRMINGHAM, AL	7	0.30	70.0	$25.67	0.10	90.0	$33.24	0.30	70.0	$25.67
3	BIRMINGHAM, AL	8	0.45	70.0	$26.11	0.20	90.0	$33.93	0.45	70.0	$26.11
3	BIRMINGHAM, AL	9	0.58	78.0	$30.97	0.30	90.0	$35.43	0.58	78.0	$30.97
3	BIRMINGHAM, AL	10	0.60	89.0	$39.01	0.50	90.0	$39.08	0.60	89.0	$39.01
3	BIRMINGHAM, AL	11	0.30	70.0	$25.67	0.10	90.0	$33.24	0.30	70.0	$25.67
3	BIRMINGHAM, AL	12	0.45	70.0	$26.11	0.20	90.0	$33.93	0.45	70.0	$26.11
4	JASPER, TN	1	0.45	70.0	$26.16	0.10	90.0	$33.99	0.45	70.0	$26.16
4	JASPER, TN	2	0.60	78.0	$31.13	0.30	90.0	$35.62	0.60	78.0	$31.13
4	JASPER, TN	3	0.58	90.0	$39.64	0.60	90.0	$39.64	0.58	90.0	$39.64
4	JASPER, TN	4	0.29	70.0	$25.71	0.10	90.0	$33.28	0.29	70.0	$25.71
4	JASPER, TN	5	0.45	70.0	$26.16	0.10	90.0	$33.99	0.45	70.0	$26.16
4	JASPER, TN	6	0.60	78.0	$31.13	0.30	90.0	$35.62	0.60	78.0	$31.13
4	JASPER, TN	7	0.58	90.0	$39.64	0.60	90.0	$39.64	0.58	90.0	$39.64
4	JASPER, TN	8	0.29	70.0	$25.71	0.10	90.0	$33.28	0.29	70.0	$25.71
4	JASPER, TN	9	0.45	70.0	$26.16	0.10	90.0	$33.99	0.45	70.0	$26.16
4	JASPER, TN	10	0.29	70.0	$25.71	0.10	90.0	$33.28	0.29	70.0	$25.71
4	JASPER, TN	11	0.60	78.0	$31.13	0.30	90.0	$35.62	0.60	78.0	$31.13
4	JASPER, TN	12	0.58	90.0	$39.64	0.60	90.0	$39.64	0.58	90.0	$39.64
7	OAK RIDGE, TN	1	0.29	70.0	$25.83	0.10	90.0	$33.44	0.29	70.0	$25.83
7	OAK RIDGE, TN	2	0.58	74.0	$27.01	0.20	90.0	$35.16	0.58	74.0	$27.01
7	OAK RIDGE, TN	3	0.58	90.0	$39.75	0.60	90.0	$39.75	0.58	90.0	$39.75
7	OAK RIDGE, TN	4	0.29	70.0	$25.83	0.10	90.0	$33.44	0.29	70.0	$25.83
7	OAK RIDGE, TN	5	0.58	74.0	$27.01	0.20	90.0	$35.16	0.58	74.0	$27.01
7	OAK RIDGE, TN	6	0.58	90.0	$39.75	0.60	90.0	$39.75	0.58	90.0	$39.75
7	OAK RIDGE, TN	7	0.29	70.0	$25.83	0.10	90.0	$33.44	0.29	70.0	$25.83
7	OAK RIDGE, TN	8	0.58	74.0	$27.01	0.20	90.0	$35.16	0.58	74.0	$27.01
7	OAK RIDGE, TN	9	0.58	90.0	$39.75	0.60	90.0	$39.75	0.58	90.0	$39.75
8	LEBANON, VA	1	0.57	79.0	$32.10	0.30	90.0	$36.69	0.57	79.0	$32.10
8	LEBANON, VA	2	0.59	90.0	$40.93	0.60	90.0	$40.93	0.59	90.0	$40.93
8	LEBANON, VA	3	0.27	70.0	$26.39	0.10	90.0	$34.14	0.27	70.0	$26.39
8	LEBANON, VA	4	0.45	70.0	$26.92	0.20	90.0	$34.98	0.45	70.0	$26.92
8	LEBANON, VA	5	0.45	70.0	$26.92	0.20	90.0	$34.98	0.45	70.0	$26.92
8	LEBANON, VA	6	0.57	79.0	$32.10	0.30	90.0	$36.69	0.57	79.0	$32.10
8	LEBANON, VA	7	0.59	90.0	$40.93	0.60	90.0	$40.93	0.59	90.0	$40.93
8	LEBANON, VA	8	0.27	70.0	$26.39	0.10	90.0	$34.14	0.27	70.0	$26.39
8	LEBANON, VA	9	0.45	70.0	$26.92	0.20	90.0	$34.98	0.45	70.0	$26.92
8	LEBANON, VA	10	0.57	79.0	$32.10	0.30	90.0	$36.69	0.57	79.0	$32.10
8	LEBANON, VA	11	0.59	90.0	$40.93	0.60	90.0	$40.93	0.59	90.0	$40.93
8	LEBANON, VA	12	0.27	70.0	$26.39	0.10	90.0	$34.14	0.27	70.0	$26.39
9	PIKEVILLE, KY	1	0.22	70.0	$26.08	0.10	90.0	$33.70	0.22	70.0	$26.08
9	PIKEVILLE, KY	2	0.45	70.0	$26.73	0.10	90.0	$34.74	0.45	70.0	$26.73
9	PIKEVILLE, KY	3	0.60	80.0	$32.19	0.30	90.0	$36.76	0.60	80.0	$32.19
9	PIKEVILLE, KY	4	0.70	90.0	$42.00	0.70	90.0	$42.00	0.70	90.0	$42.00
9	PIKEVILLE, KY	5	0.60	80.0	$32.19	0.30	90.0	$36.76	0.60	80.0	$32.19
9	PIKEVILLE, KY	6	0.70	90.0	$42.00	0.70	90.0	$42.00	0.70	90.0	$42.00
9	PIKEVILLE, KY	7	0.22	70.0	$26.08	0.10	90.0	$33.70	0.22	70.0	$26.08
9	PIKEVILLE, KY	8	0.45	70.0	$26.73	0.10	90.0	$34.74	0.45	70.0	$26.73
9	PIKEVILLE, KY	9	0.60	80.0	$32.19	0.30	90.0	$36.76	0.60	80.0	$32.19
9	PIKEVILLE, KY	10	0.70	90.0	$42.00	0.70	90.0	$42.00	0.70	90.0	$42.00
9	PIKEVILLE, KY	11	0.22	70.0	$26.08	0.10	90.0	$33.70	0.22	70.0	$26.08
9	PIKEVILLE, KY	12	0.45	70.0	$26.73	0.10	90.0	$34.74	0.45	70.0	$26.73
10	MIDDLESBORO, KY	1	0.29	70.0	$26.02	0.10	90.0	$33.67	0.29	70.0	$26.02
10	MIDDLESBORO, KY	2	0.57	81.0	$31.96	0.30	90.0	$36.45	0.57	81.0	$31.96
10	MIDDLESBORO, KY	3	0.71	90.0	$41.81	0.70	90.0	$41.81	0.71	90.0	$41.81
10	MIDDLESBORO, KY	4	0.45	70.0	$26.48	0.10	90.0	$34.41	0.45	70.0	$26.48
10	MIDDLESBORO, KY	5	0.29	70.0	$26.02	0.10	90.0	$33.67	0.29	70.0	$26.02
10	MIDDLESBORO, KY	6	0.57	81.0	$31.96	0.30	90.0	$36.45	0.57	81.0	$31.96
10	MIDDLESBORO, KY	7	0.71	90.0	$41.81	0.70	90.0	$41.81	0.71	90.0	$41.81
10	MIDDLESBORO, KY	8	0.45	70.0	$26.48	0.10	90.0	$34.41	0.45	70.0	$26.48
10	MIDDLESBORO, KY	9	0.29	70.0	$26.02	0.10	90.0	$33.67	0.29	70.0	$26.02
10	MIDDLESBORO, KY	10	0.45	70.0	$26.48	0.10	90.0	$34.41	0.45	70.0	$26.48
10	MIDDLESBORO, KY	11	0.57	81.0	$31.96	0.30	90.0	$36.45	0.57	81.0	$31.96
10	MIDDLESBORO, KY	12	0.71	90.0	$41.81	0.70	90.0	$41.81	0.71	90.0	$41.81
11	BEATTYVILLE, KY	1	0.59	70.0	$24.74	0.20	90.0	$32.27	0.59	70.0	$24.74
11	BEATTYVILLE, KY	2	0.56	88.0	$35.45	0.50	90.0	$35.57	0.56	88.0	$35.45
11	BEATTYVILLE, KY	3	0.30	70.0	$23.97	0.10	90.0	$31.04	0.30	70.0	$23.97
11	BEATTYVILLE, KY	4	0.30	70.0	$23.97	0.10	90.0	$31.04	0.30	70.0	$23.97
11	BEATTYVILLE, KY	5	0.59	70.0	$24.74	0.20	90.0	$32.27	0.59	70.0	$24.74
11	BEATTYVILLE, KY	6	0.56	88.0	$35.45	0.50	90.0	$35.57	0.56	88.0	$35.45
11	BEATTYVILLE, KY	7	0.30	70.0	$23.97	0.10	90.0	$31.04	0.30	70.0	$23.97
11	BEATTYVILLE, KY	8	0.59	70.0	$24.74	0.20	90.0	$32.27	0.59	70.0	$24.74
11	BEATTYVILLE, KY	9	0.56	88.0	$35.45	0.50	90.0	$35.57	0.56	88.0	$35.45
12	SALYERSVILLE, KY	1	0.58	76.0	$25.19	0.20	90.0	$32.74	0.58	76.0	$25.19
12	SALYERSVILLE, KY	2	0.65	90.0	$37.68	0.70	90.0	$37.68	0.65	90.0	$37.68
12	SALYERSVILLE, KY	3	0.35	70.0	$24.06	0.10	90.0	$31.19	0.35	70.0	$24.06
12	SALYERSVILLE, KY	4	0.35	70.0	$24.06	0.10	90.0	$31.19	0.35	70.0	$24.06
12	SALYERSVILLE, KY	5	0.58	76.0	$25.19	0.20	90.0	$32.74	0.58	76.0	$25.19
12	SALYERSVILLE, KY	6	0.65	90.0	$37.68	0.70	90.0	$37.68	0.65	90.0	$37.68
12	SALYERSVILLE, KY	7	0.35	70.0	$24.06	0.10	90.0	$31.19	0.35	70.0	$24.06
12	SALYERSVILLE, KY	8	0.58	76.0	$25.19	0.20	90.0	$32.74	0.58	76.0	$25.19
12	SALYERSVILLE, KY	9	0.65	90.0	$37.68	0.70	90.0	$37.68	0.65	90.0	$37.68
13	PLEASANTVILLE, OH	1	0.56	86.0	$33.52	0.40	90.0	$33.73	0.56	86.0	$33.52
13	PLEASANTVILLE, OH	2	1.18	90.0	$40.64	1.20	90.0	$40.64	1.18	90.0	$40.64
13	PLEASANTVILLE, OH	3	0.56	86.0	$33.52	0.40	90.0	$33.73	0.56	86.0	$33.52
13	PLEASANTVILLE, OH	4	1.18	90.0	$40.64	1.20	90.0	$40.64	1.18	90.0	$40.64
13	PLEASANTVILLE, OH	5	0.56	86.0	$33.52	0.40	90.0	$33.73	0.56	86.0	$33.52

Table E3. SO_x scrubbing costs for each step on the coal resource tonnage-cost schedule—Continued

SUP REG #	SUPPLY REGION	STEP	LO NSPS DIS (LBS SOX/ MILL BTU)	LO NSPS REM LEVEL (%)	LO CST (1985 $/TON)	HI NSPS DIS (LBS SOX/ MILL BTU)	HI NSPS REM LEVEL (%)	HI CST (1985 $/TON)	RNSPS DIS (LBS SOX/ MILL BTU)	RNSPS REM LEVEL (%)	RNSPS CST (1985 $/TON)
13	PLEASANTVILLE, OH	6	1.18	90.0	$40.64	1.20	90.0	$40.64	1.18	90.0	$40.64
14	CADIZ, OH	1	0.57	85.0	$30.16	0.40	90.0	$34.21	0.57	85.0	$30.16
14	CADIZ, OH	2	1.12	90.0	$41.61	1.10	90.0	$41.61	1.12	90.0	$41.61
14	CADIZ, OH	3	0.57	85.0	$30.16	0.40	90.0	$34.21	0.57	85.0	$30.16
14	CADIZ, OH	4	1.12	90.0	$41.61	1.10	90.0	$41.61	1.12	90.0	$41.61
14	CADIZ, OH	5	0.57	85.0	$30.16	0.40	90.0	$34.21	0.57	85.0	$30.16
14	CADIZ, OH	6	1.12	90.0	$41.61	1.10	90.0	$41.61	1.12	90.0	$41.61
15	YOUNGSTOWN, OH	1	0.57	85.0	$30.24	0.40	90.0	$34.30	0.57	85.0	$30.24
15	YOUNGSTOWN, OH	2	1.11	90.0	$41.75	1.10	90.0	$41.75	1.11	90.0	$41.75
15	YOUNGSTOWN, OH	3	0.57	85.0	$30.24	0.40	90.0	$34.30	0.57	85.0	$30.24
15	YOUNGSTOWN, OH	4	1.11	90.0	$41.75	1.10	90.0	$41.75	1.11	90.0	$41.75
15	YOUNGSTOWN, OH	5	0.57	85.0	$30.24	0.40	90.0	$34.30	0.57	85.0	$30.24
15	YOUNGSTOWN, OH	6	1.11	90.0	$41.75	1.10	90.0	$41.75	1.11	90.0	$41.75
16	PITTSBURGH, PA	1	0.58	79.0	$31.05	0.30	90.0	$35.49	0.58	79.0	$31.05
16	PITTSBURGH, PA	2	0.69	90.0	$40.85	0.70	90.0	$40.85	0.69	90.0	$40.85
16	PITTSBURGH, PA	3	0.58	79.0	$31.05	0.30	90.0	$35.49	0.58	79.0	$31.05
16	PITTSBURGH, PA	4	0.69	90.0	$40.85	0.70	90.0	$40.85	0.69	90.0	$40.85
16	PITTSBURGH, PA	5	0.58	79.0	$31.05	0.30	90.0	$35.49	0.58	79.0	$31.05
16	PITTSBURGH, PA	6	0.69	90.0	$40.85	0.70	90.0	$40.85	0.69	90.0	$40.85
17	KITTANNING, PA	1	0.59	80.0	$32.02	0.30	90.0	$36.57	0.59	80.0	$32.02
17	KITTANNING, PA	2	0.80	90.0	$43.19	0.80	90.0	$43.19	0.80	90.0	$43.19
17	KITTANNING, PA	3	0.59	80.0	$32.02	0.30	90.0	$36.57	0.59	80.0	$32.02
17	KITTANNING, PA	4	0.80	90.0	$43.19	0.80	90.0	$43.19	0.80	90.0	$43.19
17	KITTANNING, PA	5	0.59	80.0	$32.02	0.30	90.0	$36.57	0.59	80.0	$32.02
17	KITTANNING, PA	6	0.80	90.0	$43.19	0.80	90.0	$43.19	0.80	90.0	$43.19
18	SHARON, PA	1	0.58	81.0	$30.56	0.30	90.0	$34.86	0.58	81.0	$30.56
18	SHARON, PA	2	0.76	90.0	$40.51	0.80	90.0	$40.51	0.76	90.0	$40.51
18	SHARON, PA	3	0.58	81.0	$30.56	0.30	90.0	$34.86	0.58	81.0	$30.56
18	SHARON, PA	4	0.76	90.0	$40.51	0.80	90.0	$40.51	0.76	90.0	$40.51
18	SHARON, PA	5	0.58	81.0	$30.56	0.30	90.0	$34.86	0.58	81.0	$30.56
18	SHARON, PA	6	0.76	90.0	$40.51	0.80	90.0	$40.51	0.76	90.0	$40.51
19	STATE COLLEGE, PA	1	0.58	76.0	$27.01	0.20	90.0	$35.11	0.58	76.0	$27.01
19	STATE COLLEGE, PA	2	0.55	90.0	$39.13	0.60	90.0	$39.13	0.55	90.0	$39.13
19	STATE COLLEGE, PA	3	0.58	76.0	$27.01	0.20	90.0	$35.11	0.58	76.0	$27.01
19	STATE COLLEGE, PA	4	0.55	90.0	$39.13	0.60	90.0	$39.13	0.55	90.0	$39.13
19	STATE COLLEGE, PA	5	0.58	76.0	$27.01	0.20	90.0	$35.11	0.58	76.0	$27.01
19	STATE COLLEGE, PA	6	0.55	90.0	$39.13	0.60	90.0	$39.13	0.55	90.0	$39.13
20	SOMERSET, PA	1	0.60	75.0	$27.67	0.20	90.0	$36.00	0.60	75.0	$27.67
20	SOMERSET, PA	2	0.64	90.0	$41.34	0.60	90.0	$41.34	0.64	90.0	$41.34
20	SOMERSET, PA	3	0.60	75.0	$27.67	0.20	90.0	$36.00	0.60	75.0	$27.67
20	SOMERSET, PA	4	0.64	90.0	$41.34	0.60	90.0	$41.34	0.64	90.0	$41.34
20	SOMERSET, PA	5	0.36	70.0	$26.50	0.10	90.0	$34.37	0.36	70.0	$26.50
20	SOMERSET, PA	6	0.60	75.0	$27.67	0.20	90.0	$36.00	0.60	75.0	$27.67
20	SOMERSET, PA	7	0.64	90.0	$41.34	0.60	90.0	$41.34	0.64	90.0	$41.34
20	SOMERSET, PA	8	0.36	70.0	$26.50	0.10	90.0	$34.37	0.36	70.0	$26.50
21	CHARLESTON, WV	1	0.26	70.0	$26.52	0.10	90.0	$34.31	0.26	70.0	$26.52
21	CHARLESTON, WV	2	0.60	80.0	$32.62	0.30	90.0	$37.25	0.60	80.0	$32.62
21	CHARLESTON, WV	3	0.71	90.0	$42.66	0.70	90.0	$42.66	0.71	90.0	$42.66
21	CHARLESTON, WV	4	0.45	70.0	$27.07	0.20	90.0	$35.19	0.45	70.0	$27.07
21	CHARLESTON, WV	5	0.26	70.0	$26.52	0.10	90.0	$34.31	0.26	70.0	$26.52
21	CHARLESTON, WV	6	0.60	80.0	$32.62	0.30	90.0	$37.25	0.60	80.0	$32.62
21	CHARLESTON, WV	7	0.71	90.0	$42.66	0.70	90.0	$42.66	0.71	90.0	$42.66
21	CHARLESTON, WV	8	0.45	70.0	$27.07	0.20	90.0	$35.19	0.45	70.0	$27.07
21	CHARLESTON, WV	9	0.60	80.0	$32.62	0.30	90.0	$37.25	0.60	80.0	$32.62
21	CHARLESTON, WV	10	0.71	90.0	$42.66	0.70	90.0	$42.66	0.71	90.0	$42.66
21	CHARLESTON, WV	11	0.26	70.0	$26.52	0.10	90.0	$34.31	0.26	70.0	$26.52
21	CHARLESTON, WV	12	0.45	70.0	$27.07	0.20	90.0	$35.19	0.45	70.0	$27.07
22	CLARKSBURG, WV	1	0.59	76.0	$27.24	0.20	90.0	$35.41	0.59	76.0	$27.24
22	CLARKSBURG, WV	2	0.67	90.0	$40.92	0.70	90.0	$40.92	0.67	90.0	$40.92
22	CLARKSBURG, WV	3	0.59	76.0	$27.24	0.20	90.0	$35.41	0.59	76.0	$27.24
22	CLARKSBURG, WV	4	0.67	90.0	$40.92	0.70	90.0	$40.92	0.67	90.0	$40.92
22	CLARKSBURG, WV	5	0.59	76.0	$27.24	0.20	90.0	$35.41	0.59	76.0	$27.24
22	CLARKSBURG, WV	6	0.67	90.0	$40.92	0.70	90.0	$40.92	0.67	90.0	$40.92
23	PHILIPPI, WV	1	0.45	70.0	$27.15	0.20	90.0	$35.29	0.45	70.0	$27.15
23	PHILIPPI, WV	2	0.27	70.0	$26.61	0.10	90.0	$34.43	0.27	70.0	$26.61
23	PHILIPPI, WV	3	0.58	79.0	$32.41	0.30	90.0	$37.05	0.58	79.0	$32.41
23	PHILIPPI, WV	4	0.61	90.0	$41.48	0.60	90.0	$41.48	0.61	90.0	$41.48
23	PHILIPPI, WV	5	0.45	70.0	$27.15	0.20	90.0	$35.29	0.45	70.0	$27.15
23	PHILIPPI, WV	6	0.27	70.0	$26.61	0.10	90.0	$34.43	0.27	70.0	$26.61
23	PHILIPPI, WV	7	0.58	79.0	$32.41	0.30	90.0	$37.05	0.58	79.0	$32.41
23	PHILIPPI, WV	8	0.61	90.0	$41.48	0.60	90.0	$41.48	0.61	90.0	$41.48
23	PHILIPPI, WV	9	0.27	70.0	$26.61	0.10	90.0	$34.43	0.27	70.0	$26.61
23	PHILIPPI, WV	10	0.58	79.0	$32.41	0.30	90.0	$37.05	0.58	79.0	$32.41
23	PHILIPPI, WV	11	0.61	90.0	$41.48	0.60	90.0	$41.48	0.61	90.0	$41.48
23	PHILIPPI, WV	12	0.45	70.0	$27.15	0.20	90.0	$35.29	0.45	70.0	$27.15
26	PEORIA, IL	1	0.59	89.0	$32.33	0.50	90.0	$32.40	0.59	89.0	$32.33
26	PEORIA, IL	2	0.81	90.0	$35.32	0.80	90.0	$35.32	0.81	90.0	$35.32
26	PEORIA, IL	3	0.59	89.0	$32.33	0.50	90.0	$32.40	0.59	89.0	$32.33
26	PEORIA, IL	4	0.81	90.0	$35.32	0.80	90.0	$35.32	0.81	90.0	$35.32
26	PEORIA, IL	5	0.59	89.0	$32.33	0.50	90.0	$32.40	0.59	89.0	$32.33
26	PEORIA, IL	6	0.81	90.0	$35.32	0.80	90.0	$35.32	0.81	90.0	$35.32
27	OTTAWA, IL	1	0.59	88.0	$32.89	0.50	90.0	$33.01	0.59	88.0	$32.89
27	OTTAWA, IL	2	1.13	90.0	$38.55	1.10	90.0	$38.55	1.13	90.0	$38.55
27	OTTAWA, IL	3	0.59	88.0	$32.89	0.50	90.0	$33.01	0.59	88.0	$32.89
27	OTTAWA, IL	4	1.13	90.0	$38.55	1.10	90.0	$38.55	1.13	90.0	$38.55
27	OTTAWA, IL	5	0.59	88.0	$32.89	0.50	90.0	$33.01	0.59	88.0	$32.89
27	OTTAWA, IL	6	1.13	90.0	$38.55	1.10	90.0	$38.55	1.13	90.0	$38.55
28	TAYLORVILLE, IL	1	0.65	90.0	$33.37	0.60	90.0	$33.37	0.65	90.0	$33.37
28	TAYLORVILLE, IL	2	0.89	90.0	$35.86	0.90	90.0	$35.86	0.89	90.0	$35.86
28	TAYLORVILLE, IL	3	0.65	90.0	$33.37	0.60	90.0	$33.37	0.65	90.0	$33.37
28	TAYLORVILLE, IL	4	0.89	90.0	$35.86	0.90	90.0	$35.86	0.89	90.0	$35.86
28	TAYLORVILLE, IL	5	0.65	90.0	$33.37	0.60	90.0	$33.37	0.65	90.0	$33.37
28	TAYLORVILLE, IL	6	0.89	90.0	$35.86	0.90	90.0	$35.86	0.89	90.0	$35.86
29	MT. VERNON, IL	1	0.60	78.0	$27.82	0.30	90.0	$31.81	0.60	78.0	$27.82

Table E3. SO_x scrubbing costs for each step on the coal resource tonnage-cost schedule—Continued

SUP REG #	SUPPLY REGION	STEP	LO NSPS DIS (LBS SOX/ MILL BTU)	LO NSPS REM LEVEL (%)	LO CST (1985 $/TON)	HI NSPS DIS (LBS SOX/ MILL BTU)	HI NSPS REM LEVEL (%)	HI CST (1985 $/TON)	RNSPS DIS (LBS SOX/ MILL BTU)	RNSPS REM LEVEL (%)	RNSPS CST (1985 $/TON)
29	MT. VERNON, IL	2	0.71	90.0	$36.85	0.70	90.0	$36.85	0.71	90.0	$36.85
29	MT. VERNON, IL	3	0.60	78.0	$27.82	0.30	90.0	$31.81	0.60	78.0	$27.82
29	MT. VERNON, IL	4	0.71	90.0	$36.85	0.70	90.0	$36.85	0.71	90.0	$36.85
29	MT. VERNON, IL	5	0.60	78.0	$27.82	0.30	90.0	$31.81	0.60	78.0	$27.82
29	MT. VERNON, IL	6	0.71	90.0	$36.85	0.70	90.0	$36.85	0.71	90.0	$36.85
30	TUSCOLA, IL	1	0.59	79.0	$26.98	0.30	90.0	$30.83	0.59	79.0	$26.98
30	TUSCOLA, IL	2	0.77	90.0	$36.29	0.80	90.0	$36.29	0.77	90.0	$36.29
30	TUSCOLA, IL	3	0.59	79.0	$26.98	0.30	90.0	$30.83	0.59	79.0	$26.98
30	TUSCOLA, IL	4	0.77	90.0	$36.29	0.80	90.0	$36.29	0.77	90.0	$36.29
30	TUSCOLA, IL	5	0.59	79.0	$26.98	0.30	90.0	$30.83	0.59	79.0	$26.98
30	TUSCOLA, IL	6	0.77	90.0	$36.29	0.80	90.0	$36.29	0.77	90.0	$36.29
31	HARRISBURG, IL	1	0.58	74.0	$25.21	0.20	90.0	$32.81	0.58	74.0	$25.21
31	HARRISBURG, IL	2	0.56	89.0	$36.30	0.50	90.0	$36.37	0.56	89.0	$36.30
31	HARRISBURG, IL	3	0.58	74.0	$25.21	0.20	90.0	$32.81	0.58	74.0	$25.21
31	HARRISBURG, IL	4	0.56	89.0	$36.30	0.50	90.0	$36.37	0.56	89.0	$36.30
31	HARRISBURG, IL	5	0.58	74.0	$25.21	0.20	90.0	$32.81	0.58	74.0	$25.21
31	HARRISBURG, IL	6	0.56	89.0	$36.30	0.50	90.0	$36.37	0.56	89.0	$36.30
32	SULLIVAN, IN	1	0.59	80.0	$28.07	0.30	90.0	$32.04	0.59	80.0	$28.07
32	SULLIVAN, IN	2	0.84	90.0	$38.34	0.80	90.0	$38.34	0.84	90.0	$38.34
32	SULLIVAN, IN	3	0.59	80.0	$28.07	0.30	90.0	$32.04	0.59	80.0	$28.07
32	SULLIVAN, IN	4	0.84	90.0	$38.34	0.80	90.0	$38.34	0.84	90.0	$38.34
32	SULLIVAN, IN	5	0.59	80.0	$28.07	0.30	90.0	$32.04	0.59	80.0	$28.07
32	SULLIVAN, IN	6	0.84	90.0	$38.34	0.80	90.0	$38.34	0.84	90.0	$38.34
33	MORGANFIELD, KY	1	0.58	83.0	$29.54	0.30	90.0	$33.62	0.58	83.0	$29.54
33	MORGANFIELD, KY	2	0.82	90.0	$39.31	0.80	90.0	$39.31	0.82	90.0	$39.31
33	MORGANFIELD, KY	3	0.58	83.0	$29.54	0.30	90.0	$33.62	0.58	83.0	$29.54
33	MORGANFIELD, KY	4	0.82	90.0	$39.31	0.80	90.0	$39.31	0.82	90.0	$39.31
33	MORGANFIELD, KY	5	0.58	83.0	$29.54	0.30	90.0	$33.62	0.58	83.0	$29.54
33	MORGANFIELD, KY	6	0.82	90.0	$39.31	0.80	90.0	$39.31	0.82	90.0	$39.31
34	MADISONVILLE, KY	1	0.59	82.0	$29.50	0.30	90.0	$33.61	0.59	82.0	$29.50
34	MADISONVILLE, KY	2	0.79	90.0	$39.19	0.80	90.0	$39.19	0.79	90.0	$39.19
34	MADISONVILLE, KY	3	0.59	82.0	$29.50	0.30	90.0	$33.61	0.59	82.0	$29.50
34	MADISONVILLE, KY	4	0.79	90.0	$39.19	0.80	90.0	$39.19	0.79	90.0	$39.19
34	MADISONVILLE, KY	5	0.59	82.0	$29.50	0.30	90.0	$33.61	0.59	82.0	$29.50
34	MADISONVILLE, KY	6	0.79	90.0	$39.19	0.80	90.0	$39.19	0.79	90.0	$39.19
37	MARSHALL, TX	1	0.59	75.0	$13.50	0.20	90.0	$17.66	0.59	75.0	$13.50
37	MARSHALL, TX	2	0.56	88.0	$19.09	0.50	90.0	$19.16	0.56	88.0	$19.09
37	MARSHALL, TX	3	0.59	75.0	$13.50	0.20	90.0	$17.66	0.59	75.0	$13.50
37	MARSHALL, TX	4	0.56	88.0	$19.09	0.50	90.0	$19.16	0.56	88.0	$19.09
37	MARSHALL, TX	5	0.59	75.0	$13.50	0.20	90.0	$17.66	0.59	75.0	$13.50
37	MARSHALL, TX	6	0.56	88.0	$19.09	0.50	90.0	$19.16	0.56	88.0	$19.09
38	MT. PLEASANT, TX	1	0.59	70.0	$13.21	0.20	90.0	$17.41	0.59	70.0	$13.21
38	MT. PLEASANT, TX	2	0.59	86.0	$18.76	0.40	90.0	$18.89	0.59	86.0	$18.76
38	MT. PLEASANT, TX	3	0.59	70.0	$13.21	0.20	90.0	$17.41	0.59	70.0	$13.21
38	MT. PLEASANT, TX	4	0.59	86.0	$18.76	0.40	90.0	$18.89	0.59	86.0	$18.76
38	MT. PLEASANT, TX	5	0.59	70.0	$13.21	0.20	90.0	$17.41	0.59	70.0	$13.21
38	MT. PLEASANT, TX	6	0.59	86.0	$18.76	0.40	90.0	$18.89	0.59	86.0	$18.76
39	FAIRFIELD, TX	1	0.59	73.0	$15.10	0.20	90.0	$19.83	0.59	73.0	$15.10
39	FAIRFIELD, TX	2	0.57	83.0	$18.43	0.30	90.0	$20.67	0.57	83.0	$18.43
39	FAIRFIELD, TX	3	0.59	73.0	$15.10	0.20	90.0	$19.83	0.59	73.0	$15.10
39	FAIRFIELD, TX	4	0.57	83.0	$18.43	0.30	90.0	$20.67	0.57	83.0	$18.43
39	FAIRFIELD, TX	5	0.59	73.0	$15.10	0.20	90.0	$19.83	0.59	73.0	$15.10
39	FAIRFIELD, TX	6	0.57	83.0	$18.43	0.30	90.0	$20.67	0.57	83.0	$18.43
40	SAN ANTONIO, TX	1	0.59	77.0	$15.79	0.30	90.0	$17.79	0.59	77.0	$15.79
40	SAN ANTONIO, TX	2	0.58	90.0	$19.86	0.60	90.0	$19.86	0.58	90.0	$19.86
40	SAN ANTONIO, TX	3	0.59	77.0	$15.79	0.30	90.0	$17.79	0.59	77.0	$15.79
40	SAN ANTONIO, TX	4	0.58	90.0	$19.86	0.60	90.0	$19.86	0.58	90.0	$19.86
40	SAN ANTONIO, TX	5	0.59	77.0	$15.79	0.30	90.0	$17.79	0.59	77.0	$15.79
40	SAN ANTONIO, TX	6	0.58	90.0	$19.86	0.60	90.0	$19.86	0.58	90.0	$19.86
43	POTEAU, OK	1	0.60	80.0	$32.17	0.30	90.0	$36.74	0.60	80.0	$32.17
43	POTEAU, OK	2	0.91	90.0	$44.90	0.90	90.0	$44.90	0.91	90.0	$44.90
43	POTEAU, OK	3	0.29	70.0	$26.24	0.10	90.0	$33.96	0.29	70.0	$26.24
43	POTEAU, OK	4	0.60	80.0	$32.17	0.30	90.0	$36.74	0.60	80.0	$32.17
43	POTEAU, OK	5	0.91	90.0	$44.90	0.90	90.0	$44.90	0.91	90.0	$44.90
43	POTEAU, OK	6	0.29	70.0	$26.24	0.10	90.0	$33.96	0.29	70.0	$26.24
43	POTEAU, OK	7	0.60	80.0	$32.17	0.30	90.0	$36.74	0.60	80.0	$32.17
43	POTEAU, OK	8	0.91	90.0	$44.90	0.90	90.0	$44.90	0.91	90.0	$44.90
43	POTEAU, OK	9	0.29	70.0	$26.24	0.10	90.0	$33.96	0.29	70.0	$26.24
46	MUSKOGEE, OK	1	0.58	78.0	$30.70	0.30	90.0	$35.12	0.58	78.0	$30.70
46	MUSKOGEE, OK	2	0.76	90.0	$41.47	0.80	90.0	$41.47	0.76	90.0	$41.47
46	MUSKOGEE, OK	3	0.29	70.0	$25.42	0.10	90.0	$32.90	0.29	70.0	$25.42
46	MUSKOGEE, OK	4	0.29	70.0	$25.42	0.10	90.0	$32.90	0.29	70.0	$25.42
46	MUSKOGEE, OK	5	0.58	78.0	$30.70	0.30	90.0	$35.12	0.58	78.0	$30.70
46	MUSKOGEE, OK	6	0.76	90.0	$41.47	0.80	90.0	$41.47	0.76	90.0	$41.47
46	MUSKOGEE, OK	7	0.58	78.0	$30.70	0.30	90.0	$35.12	0.58	78.0	$30.70
46	MUSKOGEE, OK	8	0.76	90.0	$41.47	0.80	90.0	$41.47	0.76	90.0	$41.47
46	MUSKOGEE, OK	9	0.29	70.0	$25.42	0.10	90.0	$32.90	0.29	70.0	$25.42
47	PITTSBURGH, KS	1	0.59	87.0	$34.83	0.50	90.0	$35.01	0.59	87.0	$34.83
47	PITTSBURGH, KS	3	0.59	87.0	$34.83	0.50	90.0	$35.01	0.59	87.0	$34.83
47	PITTSBURGH, KS	5	0.59	87.0	$34.83	0.50	90.0	$35.01	0.59	87.0	$34.83
48	CLINTON, MO	1	0.55	90.0	$35.53	0.50	90.0	$35.53	0.55	90.0	$35.53
48	CLINTON, MO	3	0.55	90.0	$35.53	0.50	90.0	$35.53	0.55	90.0	$35.53
48	CLINTON, MO	5	0.55	90.0	$35.53	0.50	90.0	$35.53	0.55	90.0	$35.53
49	MACON, MO	1	0.65	90.0	$34.19	0.70	90.0	$34.19	0.65	90.0	$34.19
49	MACON, MO	2	1.17	90.0	$37.92	1.20	90.0	$37.92	1.17	90.0	$37.92
49	MACON, MO	3	0.65	90.0	$34.19	0.70	90.0	$34.19	0.65	90.0	$34.19
49	MACON, MO	4	1.17	90.0	$37.92	1.20	90.0	$37.92	1.17	90.0	$37.92
49	MACON, MO	5	0.65	90.0	$34.19	0.70	90.0	$34.19	0.65	90.0	$34.19
49	MACON, MO	6	1.17	90.0	$37.92	1.20	90.0	$37.92	1.17	90.0	$37.92
51	MOUND CITY, KS	1	0.94	90.0	$37.38	0.90	90.0	$37.38	0.94	90.0	$37.38
51	MOUND CITY, KS	2	0.97	90.0	$37.76	1.00	90.0	$37.76	0.97	90.0	$37.76
51	MOUND CITY, KS	3	0.94	90.0	$37.38	0.90	90.0	$37.38	0.94	90.0	$37.38
51	MOUND CITY, KS	4	0.97	90.0	$37.76	1.00	90.0	$37.76	0.97	90.0	$37.76
56	ALBIA, IA	1	0.67	90.0	$32.81	0.70	90.0	$32.81	0.67	90.0	$32.81
56	ALBIA, IA	3	0.67	90.0	$32.81	0.70	90.0	$32.81	0.67	90.0	$32.81

Table E3. SO_x scrubbing costs for each step on the coal resource tonnage-cost schedule—Continued

SUP REG #	SUPPLY REGION	STEP	LO NSPS DIS (LBS SOX/ MILL BTU)	LO NSPS REM LEVEL (%)	LO CST (1985 $/TON)	HI NSPS DIS (LBS SOX/ MILL BTU)	HI NSPS REM LEVEL (%)	HI CST (1985 $/TON)	RNSPS DIS (LBS SOX/ MILL BTU)	RNSPS REM LEVEL (%)	RNSPS CST (1985 $/TON)
56	ALBIA, IA	5	0.67	90.0	$32.81	0.70	90.0	$32.81	0.67	90.0	$32.81
57	WINSLOW, AZ	1	0.50	70.0	$21.68	0.20	90.0	$28.29	0.50	70.0	$21.68
57	WINSLOW, AZ	2	0.58	82.0	$26.35	0.30	90.0	$30.02	0.58	82.0	$26.35
57	WINSLOW, AZ	3	0.50	70.0	$21.68	0.20	90.0	$28.29	0.50	70.0	$21.68
57	WINSLOW, AZ	4	0.58	82.0	$26.35	0.30	90.0	$30.02	0.58	82.0	$26.35
57	WINSLOW, AZ	5	0.29	70.0	$21.19	0.10	90.0	$27.55	0.29	70.0	$21.19
57	WINSLOW, AZ	6	0.29	70.0	$21.19	0.10	90.0	$27.55	0.29	70.0	$21.19
57	WINSLOW, AZ	7	0.50	70.0	$21.68	0.20	90.0	$28.29	0.50	70.0	$21.68
57	WINSLOW, AZ	8	0.58	82.0	$26.35	0.30	90.0	$30.02	0.58	82.0	$26.35
61	RATON, NM	1	0.27	70.0	$23.95	0.10	90.0	$30.98	0.27	70.0	$23.95
61	RATON, NM	2	0.46	70.0	$24.43	0.20	90.0	$31.76	0.46	70.0	$24.43
61	RATON, NM	3	0.57	78.0	$28.95	0.30	90.0	$33.12	0.57	78.0	$28.95
61	RATON, NM	4	0.27	70.0	$23.95	0.10	90.0	$30.98	0.27	70.0	$23.95
61	RATON, NM	5	0.46	70.0	$24.43	0.20	90.0	$31.76	0.46	70.0	$24.43
61	RATON, NM	6	0.57	78.0	$28.95	0.30	90.0	$33.12	0.57	78.0	$28.95
61	RATON, NM	7	0.27	70.0	$23.95	0.10	90.0	$30.98	0.27	70.0	$23.95
61	RATON, NM	8	0.46	70.0	$24.43	0.20	90.0	$31.76	0.46	70.0	$24.43
61	RATON, NM	9	0.57	78.0	$28.95	0.30	90.0	$33.12	0.57	78.0	$28.95
62	GUNNISON, CO	1	0.25	70.0	$23.28	0.10	90.0	$30.23	0.25	70.0	$23.28
62	GUNNISON, CO	2	0.50	70.0	$23.94	0.20	90.0	$31.24	0.50	70.0	$23.94
62	GUNNISON, CO	3	0.60	82.0	$29.15	0.30	90.0	$33.22	0.60	82.0	$29.15
62	GUNNISON, CO	4	0.25	70.0	$23.28	0.10	90.0	$30.23	0.25	70.0	$23.28
62	GUNNISON, CO	5	0.50	70.0	$23.94	0.20	90.0	$31.24	0.50	70.0	$23.94
62	GUNNISON, CO	6	0.60	82.0	$29.15	0.30	90.0	$33.22	0.60	82.0	$29.15
62	GUNNISON, CO	7	0.25	70.0	$23.28	0.10	90.0	$30.23	0.25	70.0	$23.28
62	GUNNISON, CO	8	0.50	70.0	$23.94	0.20	90.0	$31.24	0.50	70.0	$23.94
62	GUNNISON, CO	9	0.60	82.0	$29.15	0.30	90.0	$33.22	0.60	82.0	$29.15
63	STEAMBOAT SPRINGS, CO	1	0.25	70.0	$21.86	0.10	90.0	$28.39	0.25	70.0	$21.86
63	STEAMBOAT SPRINGS, CO	2	0.48	70.0	$22.43	0.20	90.0	$29.26	0.48	70.0	$22.43
63	STEAMBOAT SPRINGS, CO	3	0.25	70.0	$21.86	0.10	90.0	$28.39	0.25	70.0	$21.86
66	RAWLINS, WY	1	0.44	70.0	$19.83	0.10	90.0	$26.17	0.44	70.0	$19.83
66	RAWLINS, WY	2	0.58	75.0	$20.68	0.20	90.0	$27.06	0.58	75.0	$20.68
66	RAWLINS, WY	3	0.26	70.0	$19.35	0.10	90.0	$25.58	0.26	70.0	$19.35
66	RAWLINS, WY	4	0.44	70.0	$19.83	0.10	90.0	$26.17	0.44	70.0	$19.83
66	RAWLINS, WY	5	0.58	75.0	$20.68	0.20	90.0	$27.06	0.58	75.0	$20.68
66	RAWLINS, WY	6	0.26	70.0	$19.35	0.10	90.0	$25.58	0.26	70.0	$19.35
66	RAWLINS, WY	7	0.44	70.0	$19.83	0.10	90.0	$26.17	0.44	70.0	$19.83
66	RAWLINS, WY	8	0.58	75.0	$20.68	0.20	90.0	$27.06	0.58	75.0	$20.68
66	RAWLINS, WY	9	0.26	70.0	$19.35	0.10	90.0	$25.58	0.26	70.0	$19.35
67	SHERIDAN & JOHNSON CTY, WY	1	0.27	70.0	$17.47	0.10	90.0	$23.09	0.27	70.0	$17.47
67	SHERIDAN & JOHNSON CTY, WY	2	0.53	70.0	$18.11	0.20	90.0	$23.89	0.53	70.0	$18.11
67	SHERIDAN & JOHNSON CTY, WY	3	0.60	84.0	$22.90	0.40	90.0	$25.67	0.60	84.0	$22.90
67	SHERIDAN & JOHNSON CTY, WY	4	0.27	70.0	$17.47	0.10	90.0	$23.09	0.27	70.0	$17.47
67	SHERIDAN & JOHNSON CTY, WY	5	0.53	70.0	$18.11	0.20	90.0	$23.89	0.53	70.0	$18.11
67	SHERIDAN & JOHNSON CTY, WY	6	0.60	84.0	$22.90	0.40	90.0	$25.67	0.60	84.0	$22.90
67	SHERIDAN & JOHNSON CTY, WY	7	0.27	70.0	$17.47	0.10	90.0	$23.09	0.27	70.0	$17.47
67	SHERIDAN & JOHNSON CTY, WY	8	0.53	70.0	$18.11	0.20	90.0	$23.89	0.53	70.0	$18.11
67	SHERIDAN & JOHNSON CTY, WY	9	0.60	84.0	$22.90	0.40	90.0	$25.67	0.60	84.0	$22.90
68	ROCK SPRINGS, WY	1	0.25	70.0	$21.62	0.10	90.0	$28.08	0.25	70.0	$21.62
68	ROCK SPRINGS, WY	2	0.60	74.0	$22.78	0.20	90.0	$29.71	0.60	74.0	$22.78
68	ROCK SPRINGS, WY	3	0.60	90.0	$33.84	0.60	90.0	$33.84	0.60	90.0	$33.84
68	ROCK SPRINGS, WY	4	0.25	70.0	$21.62	0.10	90.0	$28.08	0.25	70.0	$21.62
68	ROCK SPRINGS, WY	5	0.60	74.0	$22.78	0.20	90.0	$29.71	0.60	74.0	$22.78
68	ROCK SPRINGS, WY	6	0.60	90.0	$33.84	0.60	90.0	$33.84	0.60	90.0	$33.84
68	ROCK SPRINGS, WY	7	0.60	74.0	$22.78	0.20	90.0	$29.71	0.60	74.0	$22.78
68	ROCK SPRINGS, WY	8	0.60	90.0	$33.84	0.60	90.0	$33.84	0.60	90.0	$33.84
68	ROCK SPRINGS, WY	9	0.25	70.0	$21.62	0.10	90.0	$28.08	0.25	70.0	$21.62
70	PRICE, UT	1	0.27	70.0	$24.04	0.10	90.0	$31.10	0.27	70.0	$24.04
70	PRICE, UT	2	0.59	70.0	$24.87	0.20	90.0	$32.43	0.59	70.0	$24.87
70	PRICE, UT	3	0.58	87.0	$35.39	0.40	90.0	$35.57	0.58	87.0	$35.39
70	PRICE, UT	4	0.27	70.0	$24.04	0.10	90.0	$31.10	0.27	70.0	$24.04
70	PRICE, UT	5	0.59	70.0	$24.87	0.20	90.0	$32.43	0.59	70.0	$24.87
70	PRICE, UT	6	0.58	87.0	$35.39	0.40	90.0	$35.57	0.58	87.0	$35.39
70	PRICE, UT	7	0.27	70.0	$24.04	0.10	90.0	$31.10	0.27	70.0	$24.04
70	PRICE, UT	8	0.59	70.0	$24.87	0.20	90.0	$32.43	0.59	70.0	$24.87
70	PRICE, UT	9	0.58	87.0	$35.39	0.40	90.0	$35.57	0.58	87.0	$35.39
75	FORSYTH, MT	1	0.29	70.0	$20.97	0.10	90.0	$27.71	0.29	70.0	$20.97
75	FORSYTH, MT	2	0.46	70.0	$21.48	0.20	90.0	$28.34	0.46	70.0	$21.48
75	FORSYTH, MT	3	0.57	79.0	$26.33	0.30	90.0	$29.63	0.57	79.0	$26.33
75	FORSYTH, MT	4	0.29	70.0	$20.97	0.10	90.0	$27.71	0.29	70.0	$20.97
75	FORSYTH, MT	5	0.46	70.0	$21.48	0.20	90.0	$28.34	0.46	70.0	$21.48
75	FORSYTH, MT	6	0.57	79.0	$26.33	0.30	90.0	$29.63	0.57	79.0	$26.33
75	FORSYTH, MT	7	0.29	70.0	$20.97	0.10	90.0	$27.71	0.29	70.0	$20.97
75	FORSYTH, MT	8	0.46	70.0	$21.48	0.20	90.0	$28.34	0.46	70.0	$21.48
75	FORSYTH, MT	9	0.57	79.0	$26.33	0.30	90.0	$29.63	0.57	79.0	$26.33
80	MINOT, ND	1	0.57	70.0	$13.81	0.20	90.0	$18.21	0.57	70.0	$13.81
80	MINOT, ND	2	0.56	87.0	$19.76	0.40	90.0	$19.86	0.56	87.0	$19.76
80	MINOT, ND	3	0.57	70.0	$13.81	0.20	90.0	$18.21	0.57	70.0	$13.81
80	MINOT, ND	4	0.56	87.0	$19.76	0.40	90.0	$19.86	0.56	87.0	$19.76
80	MINOT, ND	5	0.31	70.0	$13.34	0.10	90.0	$17.62	0.31	70.0	$13.34
80	MINOT, ND	6	0.31	70.0	$13.34	0.10	90.0	$17.62	0.31	70.0	$13.34
80	MINOT, ND	7	0.57	70.0	$13.81	0.20	90.0	$18.21	0.57	70.0	$13.81
80	MINOT, ND	8	0.56	87.0	$19.76	0.40	90.0	$19.86	0.56	87.0	$19.76
80	MINOT, ND	9	0.31	70.0	$13.34	0.10	90.0	$17.62	0.31	70.0	$13.34
87	CENTRALIA, WA	1	0.25	70.0	$21.47	0.10	90.0	$27.89	0.25	70.0	$21.47
87	CENTRALIA, WA	2	0.59	73.0	$22.51	0.20	90.0	$29.37	0.59	73.0	$22.51
87	CENTRALIA, WA	3	0.55	90.0	$33.01	0.50	90.0	$33.01	0.55	90.0	$33.01
87	CENTRALIA, WA	4	0.25	70.0	$21.47	0.10	90.0	$27.89	0.25	70.0	$21.47
87	CENTRALIA, WA	5	0.59	73.0	$22.51	0.20	90.0	$29.37	0.59	73.0	$22.51
87	CENTRALIA, WA	6	0.55	90.0	$33.01	0.50	90.0	$33.01	0.55	90.0	$33.01
87	CENTRALIA, WA	7	0.25	70.0	$21.47	0.10	90.0	$27.89	0.25	70.0	$21.47
87	CENTRALIA, WA	8	0.59	73.0	$22.51	0.20	90.0	$29.37	0.59	73.0	$22.51
87	CENTRALIA, WA	9	0.55	90.0	$33.01	0.50	90.0	$33.01	0.55	90.0	$33.01
90	SAN JUAN CTY, NM	1	0.27	70.0	$19.67	0.10	90.0	$25.99	0.27	70.0	$19.67
90	SAN JUAN CTY, NM	2	0.58	70.0	$20.50	0.20	90.0	$27.03	0.58	70.0	$20.50
90	SAN JUAN CTY, NM	3	0.58	87.0	$29.43	0.40	90.0	$29.58	0.58	87.0	$29.43

Table E3. SO_x scrubbing costs for each step on the coal resource tonnage-cost schedule—Continued

SUP REG #	SUPPLY REGION	STEP	LO NSPS DIS (LBS SOX/ MILL BTU)	LO NSPS REM LEVEL (%)	LO CST (1985 $/TON)	HI NSPS DIS (LBS SOX/ MILL BTU)	HI NSPS REM LEVEL (%)	HI CST (1985 $/TON)	RNSPS DIS (LBS SOX/ MILL BTU)	RNSPS REM LEVEL (%)	RNSPS CST (1985 $/TON)
90	SAN JUAN CTY, NM	4	0.27	70.0	$19.67	0.10	90.0	$25.99	0.27	70.0	$19.67
90	SAN JUAN CTY, NM	5	0.58	70.0	$20.50	0.20	90.0	$27.03	0.58	70.0	$20.50
90	SAN JUAN CTY, NM	6	0.58	87.0	$29.43	0.40	90.0	$29.58	0.58	87.0	$29.43
90	SAN JUAN CTY, NM	7	0.27	70.0	$19.67	0.10	90.0	$25.99	0.27	70.0	$19.67
90	SAN JUAN CTY, NM	8	0.58	70.0	$20.50	0.20	90.0	$27.03	0.58	70.0	$20.50
90	SAN JUAN CTY, NM	9	0.58	87.0	$29.43	0.40	90.0	$29.58	0.58	87.0	$29.43
91	MCKINLEY CTY, NM	1	0.28	70.0	$22.56	0.10	90.0	$29.31	0.28	70.0	$22.56
91	MCKINLEY CTY, NM	2	0.50	70.0	$23.14	0.20	90.0	$30.20	0.50	70.0	$23.14
91	MCKINLEY CTY, NM	3	0.59	82.0	$28.15	0.30	90.0	$32.08	0.59	82.0	$28.15
91	MCKINLEY CTY, NM	4	0.28	70.0	$22.56	0.10	90.0	$29.31	0.28	70.0	$22.56
91	MCKINLEY CTY, NM	5	0.50	70.0	$23.14	0.20	90.0	$30.20	0.50	70.0	$23.14
91	MCKINLEY CTY, NM	6	0.59	82.0	$28.15	0.30	90.0	$32.08	0.59	82.0	$28.15
91	MCKINLEY CTY, NM	7	0.28	70.0	$22.56	0.10	90.0	$29.31	0.28	70.0	$22.56
91	MCKINLEY CTY, NM	8	0.50	70.0	$23.14	0.20	90.0	$30.20	0.50	70.0	$23.14
91	MCKINLEY CTY, NM	9	0.59	82.0	$28.15	0.30	90.0	$32.08	0.59	82.0	$28.15
92	CARBON CTY, WY	1	0.25	70.0	$21.22	0.10	90.0	$28.05	0.25	70.0	$21.22
92	CARBON CTY, WY	2	0.58	73.0	$22.46	0.20	90.0	$29.49	0.58	73.0	$22.46
92	CARBON CTY, WY	3	0.59	89.0	$32.94	0.50	90.0	$33.00	0.59	89.0	$32.94
92	CARBON CTY, WY	4	0.25	70.0	$21.22	0.10	90.0	$28.05	0.25	70.0	$21.22
92	CARBON CTY, WY	5	0.58	73.0	$22.46	0.20	90.0	$29.49	0.58	73.0	$22.46
92	CARBON CTY, WY	6	0.59	89.0	$32.94	0.50	90.0	$33.00	0.59	89.0	$32.94
92	CARBON CTY, WY	7	0.25	70.0	$21.22	0.10	90.0	$28.05	0.25	70.0	$21.22
92	CARBON CTY, WY	8	0.58	73.0	$22.46	0.20	90.0	$29.49	0.58	73.0	$22.46
92	CARBON CTY, WY	9	0.59	89.0	$32.94	0.50	90.0	$33.00	0.59	89.0	$32.94
93	MOFFAT & ROUTT CTY, CO	1	0.56	70.0	$22.03	0.20	90.0	$28.78	0.56	70.0	$22.03
93	MOFFAT & ROUTT CTY, CO	2	0.58	86.0	$31.12	0.40	90.0	$31.32	0.58	86.0	$31.12
93	MOFFAT & ROUTT CTY, CO	3	0.25	70.0	$21.29	0.10	90.0	$27.65	0.25	70.0	$21.29
93	MOFFAT & ROUTT CTY, CO	4	0.56	70.0	$22.03	0.20	90.0	$28.78	0.56	70.0	$22.03
93	MOFFAT & ROUTT CTY, CO	5	0.58	86.0	$31.12	0.40	90.0	$31.32	0.58	86.0	$31.12
93	MOFFAT & ROUTT CTY, CO	6	0.25	70.0	$21.29	0.10	90.0	$27.65	0.25	70.0	$21.29
93	MOFFAT & ROUTT CTY, CO	7	0.56	70.0	$22.03	0.20	90.0	$28.78	0.56	70.0	$22.03
93	MOFFAT & ROUTT CTY, CO	8	0.58	86.0	$31.12	0.40	90.0	$31.32	0.58	86.0	$31.12
93	MOFFAT & ROUTT CTY, CO	9	0.25	70.0	$21.29	0.10	90.0	$27.65	0.25	70.0	$21.29
94	SWEETWATER CTY, WY	1	0.58	70.0	$20.38	0.20	90.0	$26.87	0.58	70.0	$20.38
94	SWEETWATER CTY, WY	2	0.58	87.0	$29.28	0.40	90.0	$29.43	0.58	87.0	$29.28
94	SWEETWATER CTY, WY	3	0.26	70.0	$19.50	0.10	90.0	$25.78	0.26	70.0	$19.50
94	SWEETWATER CTY, WY	4	0.58	70.0	$20.38	0.20	90.0	$26.87	0.58	70.0	$20.38
94	SWEETWATER CTY, WY	5	0.58	87.0	$29.28	0.40	90.0	$29.43	0.58	87.0	$29.28
94	SWEETWATER CTY, WY	6	0.26	70.0	$19.50	0.10	90.0	$25.78	0.26	70.0	$19.50
94	SWEETWATER CTY, WY	7	0.26	70.0	$19.50	0.10	90.0	$25.78	0.26	70.0	$19.50
94	SWEETWATER CTY, WY	8	0.58	70.0	$20.38	0.20	90.0	$26.87	0.58	70.0	$20.38
94	SWEETWATER CTY, WY	9	0.58	87.0	$29.28	0.40	90.0	$29.43	0.58	87.0	$29.28
95	POWDER RIVER BASIN, MT	1	0.26	70.0	$18.74	0.10	90.0	$24.77	0.26	70.0	$18.74
95	POWDER RIVER BASIN, MT	2	0.60	72.0	$19.77	0.20	90.0	$25.99	0.60	72.0	$19.77
95	POWDER RIVER BASIN, MT	3	0.59	89.0	$29.02	0.50	90.0	$29.07	0.59	89.0	$29.02
95	POWDER RIVER BASIN, MT	4	0.26	70.0	$18.74	0.10	90.0	$24.77	0.26	70.0	$18.74
95	POWDER RIVER BASIN, MT	5	0.60	72.0	$19.77	0.20	90.0	$25.99	0.60	72.0	$19.77
95	POWDER RIVER BASIN, MT	6	0.59	89.0	$29.02	0.50	90.0	$29.07	0.59	89.0	$29.02
95	POWDER RIVER BASIN, MT	7	0.26	70.0	$18.74	0.10	90.0	$24.77	0.26	70.0	$18.74
95	POWDER RIVER BASIN, MT	8	0.60	72.0	$19.77	0.20	90.0	$25.99	0.60	72.0	$19.77
95	POWDER RIVER BASIN, MT	9	0.59	89.0	$29.02	0.50	90.0	$29.07	0.59	89.0	$29.02
96	POWDER RIVER BASIN, WY	1	0.25	70.0	$17.08	0.10	90.0	$22.58	0.25	70.0	$17.08
96	POWDER RIVER BASIN, WY	2	0.57	70.0	$17.85	0.20	90.0	$23.53	0.57	70.0	$17.85
96	POWDER RIVER BASIN, WY	3	0.60	86.0	$25.45	0.40	90.0	$25.62	0.60	86.0	$25.45
96	POWDER RIVER BASIN, WY	4	0.25	70.0	$17.08	0.10	90.0	$22.58	0.25	70.0	$17.08
96	POWDER RIVER BASIN, WY	5	0.57	70.0	$17.85	0.20	90.0	$23.53	0.57	70.0	$17.85
96	POWDER RIVER BASIN, WY	6	0.60	86.0	$25.45	0.40	90.0	$25.62	0.60	86.0	$25.45
96	POWDER RIVER BASIN, WY	7	0.57	70.0	$17.85	0.20	90.0	$23.53	0.57	70.0	$17.85
96	POWDER RIVER BASIN, WY	8	0.60	86.0	$25.45	0.40	90.0	$25.62	0.60	86.0	$25.45
96	POWDER RIVER BASIN, WY	9	0.25	70.0	$17.08	0.10	90.0	$22.58	0.25	70.0	$17.08
96	POWDER RIVER BASIN, WY	10	0.57	70.0	$17.85	0.20	90.0	$23.53	0.57	70.0	$17.85
96	POWDER RIVER BASIN, WY	11	0.60	86.0	$25.45	0.40	90.0	$25.62	0.60	86.0	$25.45
96	POWDER RIVER BASIN, WY	12	0.25	70.0	$17.08	0.10	90.0	$22.58	0.25	70.0	$17.08
96	POWDER RIVER BASIN, WY	13	0.57	70.0	$17.85	0.20	90.0	$23.53	0.57	70.0	$17.85
96	POWDER RIVER BASIN, WY	14	0.60	86.0	$25.45	0.40	90.0	$25.62	0.60	86.0	$25.45
96	POWDER RIVER BASIN, WY	15	0.25	70.0	$17.08	0.10	90.0	$22.58	0.25	70.0	$17.08
96	POWDER RIVER BASIN, WY	16	0.57	70.0	$17.85	0.20	90.0	$23.53	0.57	70.0	$17.85
96	POWDER RIVER BASIN, WY	17	0.60	86.0	$25.45	0.40	90.0	$25.62	0.60	86.0	$25.45
96	POWDER RIVER BASIN, WY	18	0.25	70.0	$17.08	0.10	90.0	$22.58	0.25	70.0	$17.08
96	POWDER RIVER BASIN, WY	19	0.57	70.0	$17.85	0.20	90.0	$23.53	0.57	70.0	$17.85
96	POWDER RIVER BASIN, WY	20	0.60	86.0	$25.45	0.40	90.0	$25.62	0.60	86.0	$25.45
96	POWDER RIVER BASIN, WY	21	0.25	70.0	$17.08	0.10	90.0	$22.58	0.25	70.0	$17.08
96	POWDER RIVER BASIN, WY	22	0.57	70.0	$17.85	0.20	90.0	$23.53	0.57	70.0	$17.85
96	POWDER RIVER BASIN, WY	23	0.60	86.0	$25.45	0.40	90.0	$25.62	0.60	86.0	$25.45
96	POWDER RIVER BASIN, WY	24	0.25	70.0	$17.08	0.10	90.0	$22.58	0.25	70.0	$17.08
96	POWDER RIVER BASIN, WY	25	0.25	70.0	$17.08	0.10	90.0	$22.58	0.25	70.0	$17.08
96	POWDER RIVER BASIN, WY	26	0.57	70.0	$17.85	0.20	90.0	$23.53	0.57	70.0	$17.85
96	POWDER RIVER BASIN, WY	27	0.60	86.0	$25.45	0.40	90.0	$25.62	0.60	86.0	$25.45
97	FORT UNION, MT	1	0.32	70.0	$13.64	0.10	90.0	$18.02	0.32	70.0	$13.64
97	FORT UNION, MT	2	0.59	79.0	$17.11	0.30	90.0	$19.26	0.59	79.0	$17.11
97	FORT UNION, MT	3	0.84	90.0	$23.05	0.80	90.0	$23.05	0.84	90.0	$23.05
97	FORT UNION, MT	4	0.32	70.0	$13.64	0.10	90.0	$18.02	0.32	70.0	$13.64
97	FORT UNION, MT	5	0.59	79.0	$17.11	0.30	90.0	$19.26	0.59	79.0	$17.11
97	FORT UNION, MT	6	0.84	90.0	$23.05	0.80	90.0	$23.05	0.84	90.0	$23.05
97	FORT UNION, MT	7	0.32	70.0	$13.64	0.10	90.0	$18.02	0.32	70.0	$13.64
97	FORT UNION, MT	8	0.59	79.0	$17.11	0.30	90.0	$19.26	0.59	79.0	$17.11
97	FORT UNION, MT	9	0.84	90.0	$23.05	0.80	90.0	$23.05	0.84	90.0	$23.05
98	FORT UNION, ND	1	0.59	76.0	$14.23	0.20	90.0	$18.59	0.59	76.0	$14.23
98	FORT UNION, ND	2	0.68	90.0	$21.49	0.70	90.0	$21.49	0.68	90.0	$21.49
98	FORT UNION, ND	3	0.31	70.0	$13.34	0.10	90.0	$17.62	0.31	70.0	$13.34
98	FORT UNION, ND	4	0.59	76.0	$14.23	0.20	90.0	$18.59	0.59	76.0	$14.23
98	FORT UNION, ND	5	0.68	90.0	$21.49	0.70	90.0	$21.49	0.68	90.0	$21.49
98	FORT UNION, ND	6	0.31	70.0	$13.34	0.10	90.0	$17.62	0.31	70.0	$13.34
98	FORT UNION, ND	7	0.59	76.0	$14.23	0.20	90.0	$18.59	0.59	76.0	$14.23
98	FORT UNION, ND	8	0.68	90.0	$21.49	0.70	90.0	$21.49	0.68	90.0	$21.49
98	FORT UNION, ND	9	0.31	70.0	$13.34	0.10	90.0	$17.62	0.31	70.0	$13.34
99	DENVER BASIN, CO	1	0.45	70.0	$20.42	0.10	90.0	$26.95	0.45	70.0	$20.42
99	DENVER BASIN, CO	2	0.27	70.0	$19.92	0.10	90.0	$26.34	0.27	70.0	$19.92
99	DENVER BASIN, CO	3	0.45	70.0	$20.42	0.10	90.0	$26.95	0.45	70.0	$20.42
99	DENVER BASIN, CO	4	0.27	70.0	$19.92	0.10	90.0	$26.34	0.27	70.0	$19.92

Table F1. Rail transport rate equations

(Dependent Variable is Rate in 1975 $/ton)*

Explanatory Variables	Eqtn** 1	Eqtn 2	Eqtn 3	Eqtn 4	Eqtn 5	Eqtn 6	Eqtn 7	Eqtn 8	Eqtn 9	Eqtn 10	Eqtn 11	Eqtn 12
Constant	-6.5 (1.6)	-1.6 (2.3)	0.49 (0.42)	-13.6 (0.5)	-2.54 (0.70)	8.33 (1.28)	-0.24 (0.44)	-4.91 (3.94)	-9.79 (1.63)	-14.15 (3.11)	-4.23 (0.25)	2.32 (1.20)
AS - Annual Shipment tonnage between origin and destination				-5.0 (1.7)	-5.52 (0.61)	54.84 (6.20)	8.62 (2.19)	1.29 (55.60)	-23.7 (7.3)	348.3 (562.9)	-12.2 (0.9)	83.5 (14.0)
CONSOWN - Dummy. Consignee Ownership of cars = 1; 0 otherwise.			1.04 (0.53)									
FOBPRIS - Fob mine price by county of coal	0.05 (0.02)	0.03 (0.09)	-0.0008 (0.01)									
LOADTIM - No. of hours to load train at origin.	0.09 (0.05)	0.07 (0.07)	0.02 (0.005)									
MILES - Distance between origin and destination	0.67 (0.07)	1.19 (0.35)	0.71 (0.04)									
MINTON - Minimum annual tonnage required by railroad between origin and destination.	-0.06 (0.28)	0.12 (0.56)	-0.62 (0.09)									
MISS - Dummy. Shipment crosses Mississippi = 1; 0 otherwise.	(0.60) (0.54)			2.21 (0.17)								
MLSH - Miles times annual no. of shipments between				-0.47 (0.02)	0.77 (0.08)	-1.10 (0.33)	0.09 (0.02)	-4.91 (1.19)	-0.12 (0.51)	-16.7 (4.6)	-0.05 (0.02)	0.09 (0.09)
NS - Annual no. of shipments between origin and destination				0.008 (0.002)	-0.008 (0.001)	-0.04 (0.06)	-0.01 (0.001)	-0.04 (0.06)	-0.03 (0.01)	0.29 (0.46)	-0.005 (0.0009)	-0.08 (0.01)
PALT - Delivered price of an alternative fuel	-0.0008 (0.0176)	-0.003 (0.040)	0.02 (0.01)									
RR - No. of coal hauling railroads in origin county					-0.13 (0.02)	-0.09 (0.06)	-0.18 (0.04)	0.76 (0.49)	-0.43 (0.07)	-0.16 (0.25)	0.08 (0.02)	-0.15 (0.09)
RROWN - Dummy. Railroad owns the cars - 1; 0 otherwise.	-0.53 (0.43)	0.56 (0.58)	1.09 (0.22)									

Table F1. Rail transport rate equations—Continued

Explanatory Variables	Eqtn** 1	Eqtn 2	Eqtn 3	Eqtn 4	Eqtn 5	Eqtn 6	Eqtn 7	Eqtn 8	Eqtn 9	Eqtn 10	Eqtn 11	Eqtn 12
SIP - Air quality restriction in destination county.					-0.16 (0.01)	-0.12 (0.02)	-0.21 (0.02)	0.08 (0.24)	0.07 (0.08)	0.67 (0.30)	-0.13 (0.01)	0.07 (0.06)
TD - Dummy. Truck competition = 1; 0 otherwise.				-1.37 (0.22)								
TONS - Minimum no. of tons required per trainload by railroad between origin and destination	0.45 (0.15)	-0.17 (0.23)	0.01 (0.03)									
TT - Optimum transit time between origin and destination				0.15 (0.003)	0.05 (0.006)	0.13 (0.01)	0.03 (0.004)	0.08 (0.03)	0.13 (0.02)	0.17 (0.03)	0.08 (0.002)	0.04 (0.009)
UNLOAD - Hours to unload train at destination	0.21 (0.04)	0.06 (0.06)	0.06 (0.01)									
R^2	0.92	0.77	0.85									
Std Error of Regression				2.71	0.49	1.65	0.28	2.15	1.03	2.26	1.17	7.45
No. of Observations	38	26	184	2855	967	412	1181	77	405	113	6896	9496

*See Bernknopf (1985) for details concerning rationale for explanatory variables. Equations 1 through 3 (unit trains) are discussed in Chapter 4, pp. 102-06. Equations 4 through 12 (regular rail) are discussed in Appendix IV.B, pp. 126-36. Numbers in parentheses, below estimated parameter values, are estimated standard errors for the parameter values.

**Equation 1: Unit train, West.
Equation 2: Unit train, Midwest.
Equation 3: Unit train, East.
Equation 4: Regular rail, West.
Equation 5: Regular rail, Midwest intraregional, more than 38 shipments annually.
Equation 6: Regular rail, Midwest intraregional, fewer than 38 shipments annually.
Equation 7: Regular rail, Midwest interregional to the East, more than 80 shipments annually.
Equation 8: Regular rail, Midwest interregional to the East, fewer than 80 shipments annually.
Equation 9: Regular rail, East interregional to the South, minimum transit time less than 117 hours.
Equation 10: Regular rail, East interregional to the South, minimum transit time greater than 117 hours.
Equation 11: Regular rail, East intraregional, minimum transit time less than 117 hours.
Equation 12: Regular rail, East intraregional, minimum transit time greater than 117 hours.

Table F2. Loading dock locations for rail/barge transport of coal

Coal Loading Dock	AQCR Location
Ohio, Monongahela & Allegheny Confluence	197
Ohio River	181
Monongahela River	235
Kanawha River	103
Kanawha & Ohio Confluence	103
Kentucky & Ohio Confluence	79
Ohio River	78
Green & Ohio Confluence	77
Cumberland & Ohio Confluence	72
Cumberland River in AQCR 208	208
Upper Mississippi River	131
Upper Mississippi River	128
Upper Mississippi River	68
Upper Mississippi River	69
Upper Mississippi River	65
Upper Mississippi River	70
Mississippi & Missouri Confluence	137
Lower Mississippi River	106
Tennessee River	207
Tennessee River	7
Black Warrior River	4
Illinois & Mississippi Confluence	75
Illinois River	71
Illinois River	67
Arkansas River	17
Arkansas River	21
Arkansas River	186
Quachita River	19
Alabama River	1
Chattahoochee River	2

Table F3. Lock capacities for barge transport of coal

Location of Lock*	Downstream Capacity (1000 tons per year)	Upstream Capacity (1000 tons per year)
Upper Ohio River, AQCR 197	12923	11948
Upper Ohio River, AQCR 181	39284	28460
Upper Ohio River, AQCR 179	38786	26243
Middle Ohio River, AQCR 103	20440	12748
Middle Ohio River, AQCR 79	29594	16716
Middle Ohio River, AQCRs 78, 83 & 104	26414	13182
Lower Ohio River, AQCR 77	30776	13078
Lower Ohio River, AQCRs 72, 74 & 138	139118	47419
Kanawha River, AQCR 234	5033	5033
Monongahela River, AQCR 235	2886	2886
Kentucky River, Upper Reach, AQCR 101	1603	1603
Kentucky River, Lower Reach, AQCR 102	1603	1603
Green River, AQCR 105	11584	11584
Cumberland River, AQCR 208	4872	4872
Tennessee River, Upper Reach, AQCR 207	4312	4312
Tennessee River, Middle Reach, AQCR 55	4313	4313
Tennessee River, Middle Reach, AQCR 7	8003	8003
Tennessee River, Lower Reach, AQCR 209	8420	8420
Mississippi River, Upper Reach, AQCR 131	4924	4924
Mississippi River, Upper Reach, AQCR 128	9032	9032
Mississippi River, Upper Reach, AQCR 68	12528	12528
Mississippi River, Upper Reach, AQCR 69	12802	12802
Mississippi River, Upper Reach, AQCR 65	12330	12330
Mississippi River, Middle Reach AQCR 137	12043	12043
Mississippi River, Middle Reach AQCR 70	35693	35693
Illinois River, Upper Reach, AQCR 67	6874	6874
Illinois River, Middle Reach, AQCR 71	8379	8379
Illinois River, Lower Reach, AQCR 75	11643	11643
Arkansas River, Middle Reach, AQCR 186	6078	6078
Arkansas River, Lower Reach, AQCR 17	7381	7381
Arkansas River, Lower Reach, AQCR 21	7879	7879
Arkansas River, Lower Reach, AQCR 16	7381	7381
Quachita River, AQCR 19	4452	4452
Alabama River, AQCR 1	8828	8828
Tombigbee River, Upper Reach, AQCR 135	15841	15841
Tombigbee River, Lower Reach, AQCR 5	1000000	1000000
Black Warrior River, AQCR 4	5938	5938
Chatahoochee River, Middle Reach, AQCR 2	2314	2314
Chatahoochee River, Lower Realch, AQCR 6	2314	2314
Gulf Intercoastal Waterway, West, AQCR 216	14770	14770

*Lock capacity for coal is capacity of smallest lock in river reach adjusted to account for barge shipment of commodities other than coal, and to account for two-way traffic.

Table F4. Transmission capacities for mine mouth power plants

(1000 TONS OF COAL EQUIVALENT)

SUP REG #	SUPPLY REGION	1988	1993	1998	2005	2015	2025
3	BIRMINGHAM, AL	5125	5933	6834	8262	9753	11400
8	LEBANON, VA	2937	3400	3916	4735	5590	6533
12	SALYERSVILLE, KY	3478	4026	4637	5606	6618	7735
13	PLEASANTVILLE, OH	14744	17067	19659	23769	28059	32795
14	CADIZ, OH	4825	5585	6433	7778	9182	10731
16	PITTSBURGH, PA	31634	36618	42178	50997	60200	70361
17	KITTANNING, PA	17404	20147	23206	28058	33121	38712
20	SOMERSET, PA	4969	5752	6626	8011	9457	11053
28	TAYLORVILLE, IL	7842	9078	10456	12642	14924	17443
29	MT. VERNON, IL	6354	7355	8472	10243	12091	14132
30	TUSCOLA, IL	7358	8517	9811	11862	14003	16366
32	SULLIVAN, IN	382	442	509	615	726	849
33	MORGANFIELD, KY	3970	4595	5293	6400	7555	8830
34	MADISONVILLE, KY	7788	9015	10383	12555	14820	17322
38	MT. PLEASANT, TX	5895	6824	7860	9504	11219	13113
39	FAIRFIELD, TX	9028	10450	12037	14554	17180	20080
48	CLINTON, MO	2655	3073	3539	4279	5052	5904
51	MOUND CITY, KS	2383	2758	3177	3841	4534	5299
62	GUNNISON, CO	167	193	222	269	317	371
68	ROCK SPRINGS, WY	3020	3496	4027	4869	5748	6718
70	PRICE, UT	1739	2013	2319	2804	3310	3869
80	MINOT, ND	5999	6945	7999	9672	11417	13344
87	CENTRALIA, WA	6999	8102	9332	11284	13320	15568
90	SAN JUAN CTY, NM	16000	18521	21333	25794	30449	35588
93	MOFFAT & ROUTT CTY, CO	1069	1238	1426	1724	2035	2378
94	SWEETWATER CTY, WY	2386	2762	3181	3846	4540	5307
95	POWDER RIVER BASIN, MT	2000	2315	2666	3224	3806	4448
96	POWDER RIVER BASIN, WY	5273	6104	7031	8501	10035	11729
98	FORT UNION, ND	12000	13891	16001	19346	22837	26692

Table F5. Transport rates for coal shipments by unit train

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
3	BIRMINGHAM, AL	1	JACKSON, AL	$5.64
3	BIRMINGHAM, AL	2	COLUMBUS, GA	$6.59
3	BIRMINGHAM, AL	3	GADSDEN, AL	$3.56
3	BIRMINGHAM, AL	4	BIRMINGHAM, AL	$2.37
3	BIRMINGHAM, AL	5	MOBILE, AL	$6.57
3	BIRMINGHAM, AL	6	DOTHAN, AL	$5.91
3	BIRMINGHAM, AL	7	DECATUR, AL	$3.92
3	BIRMINGHAM, AL	18	MEMPHIS, TN	$9.03
3	BIRMINGHAM, AL	49	JACKSONVILLE, FL	$10.22
3	BIRMINGHAM, AL	50	W. PALM BEACH, FL	$15.45
3	BIRMINGHAM, AL	51	FT. MEYER, FL	$14.78
3	BIRMINGHAM, AL	53	AUGUSTA, GA	$9.29
3	BIRMINGHAM, AL	54	MACON, GA	$7.95
3	BIRMINGHAM, AL	55	CHATTANOOGA, TN	$4.83
3	BIRMINGHAM, AL	56	ATLANTA, GA	$7.74
3	BIRMINGHAM, AL	57	ATHENS, GA	$7.72
3	BIRMINGHAM, AL	58	SAVANNAH, GA	$10.56
3	BIRMINGHAM, AL	59	ALBANY, GA	$7.91
3	BIRMINGHAM, AL	106	NEW ORLEANS, LA	$8.46
3	BIRMINGHAM, AL	134	GREENVILLE, MS	$6.89
3	BIRMINGHAM, AL	135	TUPELO, MS	$4.83
3	BIRMINGHAM, AL	166	RALEIGH, NC	$9.35
3	BIRMINGHAM, AL	171	ASHEVILLE, NC	$8.78
3	BIRMINGHAM, AL	198	SUMTER, SC	$9.52
3	BIRMINGHAM, AL	199	CHARLESTON, SC	$10.05
3	BIRMINGHAM, AL	200	COLUMBIA, SC	$8.86
3	BIRMINGHAM, AL	201	FLORENCE, SC	$10.11
3	BIRMINGHAM, AL	202	SPARTANBURG, SC	$4.85
3	BIRMINGHAM, AL	203	GREENWOOD, SC	$7.72
3	BIRMINGHAM, AL	207	KNOXVILLE, TN	$9.12
3	BIRMINGHAM, AL	208	NASHVILLE, TN	$8.33
3	BIRMINGHAM, AL	209	JACKSON, TN	$8.52
4	JASPER, TN	1	JACKSON, AL	$8.40
4	JASPER, TN	2	COLUMBUS, GA	$8.42
4	JASPER, TN	3	GADSDEN, AL	$4.56
4	JASPER, TN	4	BIRMINGHAM, AL	$5.11
4	JASPER, TN	7	DECATUR, AL	$4.16
4	JASPER, TN	48	ORLANDO, FL	$13.76
4	JASPER, TN	50	W. PALM BEACH, FL	$16.51
4	JASPER, TN	51	FT. MEYER, FL	$16.13
4	JASPER, TN	52	TAMPA, FL	$13.21
4	JASPER, TN	54	MACON, GA	$8.18

Table F5. Transport rates for coal shipments by unit train—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
4	JASPER, TN	55	CHATTANOOGA, TN	$3.16
4	JASPER, TN	56	ATLANTA, GA	$7.78
4	JASPER, TN	57	ATHENS, GA	$7.84
4	JASPER, TN	106	NEW ORLEANS, LA	$11.19
4	JASPER, TN	135	TUPELO, MS	$6.40
4	JASPER, TN	171	ASHEVILLE, NC	$7.10
4	JASPER, TN	202	SPARTANBURG, SC	$8.14
4	JASPER, TN	203	GREENWOOD, SC	$7.84
4	JASPER, TN	204	GEORGETOWN, SC	$11.21
4	JASPER, TN	207	KNOXVILLE, TN	$7.46
4	JASPER, TN	208	NASHVILLE, TN	$4.83
7	OAK RIDGE, TN	1	JACKSON, AL	$11.28
7	OAK RIDGE, TN	2	COLUMBUS, GA	$11.11
7	OAK RIDGE, TN	3	GADSDEN, AL	$7.46
7	OAK RIDGE, TN	4	BIRMINGHAM, AL	$8.01
7	OAK RIDGE, TN	5	MOBILE, AL	$12.21
7	OAK RIDGE, TN	6	DOTHAN, AL	$11.55
7	OAK RIDGE, TN	7	DECATUR, AL	$7.93
7	OAK RIDGE, TN	50	W. PALM BEACH, FL	$19.08
7	OAK RIDGE, TN	51	FT. MEYER, FL	$18.72
7	OAK RIDGE, TN	53	AUGUSTA, GA	$11.32
7	OAK RIDGE, TN	54	MACON, GA	$10.77
7	OAK RIDGE, TN	55	CHATTANOOGA, TN	$6.06
7	OAK RIDGE, TN	56	ATLANTA, GA	$10.37
7	OAK RIDGE, TN	57	ATHENS, GA	$10.43
7	OAK RIDGE, TN	58	SAVANNAH, GA	$13.00
7	OAK RIDGE, TN	79	CINCINNATI, OH	$9.29
7	OAK RIDGE, TN	101	HAZARD, KY	$9.50
7	OAK RIDGE, TN	102	LEXINGTON, KY	$8.78
7	OAK RIDGE, TN	103	HUNTINGTON, WV	$10.71
7	OAK RIDGE, TN	122	GRAND RAPIDS, MI	$13.29
7	OAK RIDGE, TN	135	TUPELO, MS	$10.18
7	OAK RIDGE, TN	164	OLEAN, NY	$10.71
7	OAK RIDGE, TN	166	RALEIGH, NC	$9.26
7	OAK RIDGE, TN	167	CHARLOTTE, NC	$13.59
7	OAK RIDGE, TN	168	ELIZABETH CITY, NC	$9.99
7	OAK RIDGE, TN	169	FAYETTEVILLE, NC	$11.34
7	OAK RIDGE, TN	170	WILMINGTON, NC	$12.13
7	OAK RIDGE, TN	171	ASHEVILLE, NC	$7.12
7	OAK RIDGE, TN	173	DAYTON, OH	$10.03
7	OAK RIDGE, TN	176	COLUMBUS, OH	$10.94
7	OAK RIDGE, TN	177	LIMA, OH	$11.11
7	OAK RIDGE, TN	182	CHILLICOTHE, OH	$10.52
7	OAK RIDGE, TN	198	SUMTER, SC	$10.24
7	OAK RIDGE, TN	199	CHARLESTON, SC	$11.53
7	OAK RIDGE, TN	200	COLUMBIA, SC	$9.58
7	OAK RIDGE, TN	201	FLORENCE, SC	$10.81
7	OAK RIDGE, TN	202	SPARTANBURG, SC	$8.16
7	OAK RIDGE, TN	203	GREENWOOD, SC	$9.22
7	OAK RIDGE, TN	204	GEORGETOWN, SC	$12.00
7	OAK RIDGE, TN	207	KNOXVILLE, TN	$7.48
7	OAK RIDGE, TN	208	NASHVILLE, TN	$9.96
7	OAK RIDGE, TN	234	CHARLESTON, WV	$11.47
7	OAK RIDGE, TN	236	BECKLEY, WV	$11.15
8	LEBANON, VA	1	JACKSON, AL	$12.36
8	LEBANON, VA	2	COLUMBUS, GA	$11.89
8	LEBANON, VA	3	GADSDEN, AL	$8.67
8	LEBANON, VA	4	BIRMINGHAM, AL	$9.22
8	LEBANON, VA	6	DOTHAN, AL	$12.47
8	LEBANON, VA	7	DECATUR, AL	$9.14
8	LEBANON, VA	41	NORWICH, CT	$15.92
8	LEBANON, VA	42	HARTFORD, CT	$15.52
8	LEBANON, VA	44	TORRINGTON, CT	$15.48
8	LEBANON, VA	45	PHILADEPHIA, PA	$13.72
8	LEBANON, VA	47	WASHINGTON, DC	$11.60
8	LEBANON, VA	49	JACKSONVILLE, FL	$13.04
8	LEBANON, VA	50	W. PALM BEACH, FL	$18.30
8	LEBANON, VA	51	FT. MEYER, FL	$18.42
8	LEBANON, VA	53	AUGUSTA, GA	$9.79
8	LEBANON, VA	54	MACON, GA	$11.55
8	LEBANON, VA	55	CHATTANOOGA, TN	$7.29
8	LEBANON, VA	56	ATLANTA, GA	$11.15
8	LEBANON, VA	57	ATHENS, GA	$10.15
8	LEBANON, VA	58	SAVANNAH, GA	$11.47
8	LEBANON, VA	59	ALBANY, GA	$12.95
8	LEBANON, VA	78	LOUISVILLE, KY	$9.96
8	LEBANON, VA	79	CINCINNATI, OH	$9.92
8	LEBANON, VA	101	HAZARD, KY	$10.13
8	LEBANON, VA	102	LEXINGTON, KY	$9.41
8	LEBANON, VA	103	HUNTINGTON, WV	$9.43
8	LEBANON, VA	104	ELIZABETHTOWN, KY	$9.16
8	LEBANON, VA	105	BOWLING GREEN, KY	$10.26
8	LEBANON, VA	107	LEWISTON, ME	$19.59
8	LEBANON, VA	112	FREDERICK, MD	$11.79
8	LEBANON, VA	113	HAGERSTOWN, MD	$11.70
8	LEBANON, VA	115	BALTIMORE, MD	$12.34
8	LEBANON, VA	116	BRANDYWINE, MD	$12.21
8	LEBANON, VA	123	DETROIT, MI	$12.66
8	LEBANON, VA	135	TUPELO, MS	$11.41
8	LEBANON, VA	158	SYRACUSE, NY	$19.38
8	LEBANON, VA	164	OLEAN, NY	$6.40
8	LEBANON, VA	165	HICKORY, NC	$10.81

Table F5. Transport rates for coal shipments by unit train—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
8	LEBANON, VA	166	RALEIGH, NC	$7.27
8	LEBANON, VA	167	CHARLOTTE, NC	$9.96
8	LEBANON, VA	168	ELIZABETH CITY, NC	$7.74
8	LEBANON, VA	169	FAYETTEVILLE, NC	$9.20
8	LEBANON, VA	170	WILMINGTON, NC	$10.13
8	LEBANON, VA	171	ASHEVILLE, NC	$6.34
8	LEBANON, VA	173	DAYTON, OH	$10.60
8	LEBANON, VA	175	MANSFIELD, OH	$11.24
8	LEBANON, VA	176	COLUMBUS, OH	$10.13
8	LEBANON, VA	177	LIMA, OH	$11.43
8	LEBANON, VA	179	PARKERSBURG, WV	$11.28
8	LEBANON, VA	180	SANDUSKY, OH	$11.85
8	LEBANON, VA	181	WHEELING, WV	$12.66
8	LEBANON, VA	182	CHILLICOTHE, OH	$9.43
8	LEBANON, VA	183	ZANESVILLE, OH	$10.52
8	LEBANON, VA	196	HARRISBURG, PA	$12.78
8	LEBANON, VA	197	PITTSBURGH, PA	$11.85
8	LEBANON, VA	198	SUMTER, SC	$8.71
8	LEBANON, VA	199	CHARLESTON, SC	$10.01
8	LEBANON, VA	200	COLUMBIA, SC	$8.06
8	LEBANON, VA	201	FLORENCE, SC	$9.05
8	LEBANON, VA	202	SPARTANBURG, SC	$6.64
8	LEBANON, VA	203	GREENWOOD, SC	$7.70
8	LEBANON, VA	204	GEORGETOWN, SC	$10.24
8	LEBANON, VA	207	KNOXVILLE, TN	$8.20
8	LEBANON, VA	208	NASHVILLE, TN	$11.49
8	LEBANON, VA	222	LYNCHBURG, VA	$8.90
8	LEBANON, VA	223	NORFOLK, VA	$11.68
8	LEBANON, VA	224	FREDERICKSBURG, VA	$11.51
8	LEBANON, VA	225	RICHMOND, VA	$10.73
8	LEBANON, VA	226	ROANOKE, VA	$8.90
8	LEBANON, VA	231	ELKINS, WV	$11.68
8	LEBANON, VA	232	GASSAWAY, WV	$10.81
8	LEBANON, VA	233	MARTINSBURG, WV	$10.71
8	LEBANON, VA	234	CHARLESTON, WV	$9.41
8	LEBANON, VA	235	CLARKSBURG, WV	$12.47
8	LEBANON, VA	236	BECKLEY, WV	$8.59
9	PIKEVILLE, KY	1	JACKSON, AL	$12.44
9	PIKEVILLE, KY	2	COLUMBUS, GA	$11.98
9	PIKEVILLE, KY	3	GADSDEN, AL	$8.76
9	PIKEVILLE, KY	4	BIRMINGHAM, AL	$9.31
9	PIKEVILLE, KY	5	MOBILE, AL	$13.36
9	PIKEVILLE, KY	6	DOTHAN, AL	$12.53
9	PIKEVILLE, KY	7	DECATUR, AL	$9.22
9	PIKEVILLE, KY	18	MEMPHIS, TN	$14.73
9	PIKEVILLE, KY	41	NORWICH, CT	$16.73
9	PIKEVILLE, KY	42	HARTFORD, CT	$16.30
9	PIKEVILLE, KY	43	NEW YORK, NY	$16.01
9	PIKEVILLE, KY	44	TORRINGTON, CT	$16.28
9	PIKEVILLE, KY	45	PHILADEPHIA, PA	$14.52
9	PIKEVILLE, KY	46	DOVER, DE	$14.54
9	PIKEVILLE, KY	47	WASHINGTON, DC	$12.40
9	PIKEVILLE, KY	48	ORLANDO, FL	$16.49
9	PIKEVILLE, KY	49	JACKSONVILLE, FL	$13.74
9	PIKEVILLE, KY	50	W. PALM BEACH, FL	$19.00
9	PIKEVILLE, KY	51	FT. MEYER, FL	$19.12
9	PIKEVILLE, KY	52	TAMPA, FL	$16.30
9	PIKEVILLE, KY	53	AUGUSTA, GA	$10.52
9	PIKEVILLE, KY	54	MACON, GA	$11.62
9	PIKEVILLE, KY	55	CHATTANOOGA, TN	$7.36
9	PIKEVILLE, KY	56	ATLANTA, GA	$11.24
9	PIKEVILLE, KY	57	ATHENS, GA	$10.85
9	PIKEVILLE, KY	58	SAVANNAH, GA	$12.19
9	PIKEVILLE, KY	59	ALBANY, GA	$13.04
9	PIKEVILLE, KY	65	PEORIA, IL	$11.09
9	PIKEVILLE, KY	66	DANVILLE, IL	$11.91
9	PIKEVILLE, KY	67	CHICAGO, IL	$12.87
9	PIKEVILLE, KY	70	ST. LOUIS, MO	$13.89
9	PIKEVILLE, KY	71	LASALLE, IL	$13.84
9	PIKEVILLE, KY	72	PADUCAH, KY	$13.21
9	PIKEVILLE, KY	73	ROCKFORD, IL	$14.08
9	PIKEVILLE, KY	74	MARION, IL	$13.40
9	PIKEVILLE, KY	75	SPRINGFIELD, IL	$13.67
9	PIKEVILLE, KY	76	MUNCIE, IN	$10.30
9	PIKEVILLE, KY	77	EVANSVILLE, IN	$11.79
9	PIKEVILLE, KY	78	LOUISVILLE, KY	$8.42
9	PIKEVILLE, KY	79	CINCINNATI, OH	$7.17
9	PIKEVILLE, KY	80	INDIANAPOLIS, IN	$10.62
9	PIKEVILLE, KY	81	FT. WAYNE, IN	$10.83
9	PIKEVILLE, KY	82	SOUTH BEND, IN	$12.11
9	PIKEVILLE, KY	83	BLOOMINGTON, IN	$11.26
9	PIKEVILLE, KY	84	TERRA HAUTE, IN	$11.70
9	PIKEVILLE, KY	101	HAZARD, KY	$8.25
9	PIKEVILLE, KY	102	LEXINGTON, KY	$7.53
9	PIKEVILLE, KY	103	HUNTINGTON, WV	$5.30
9	PIKEVILLE, KY	104	ELIZABETHTOWN, KY	$8.37
9	PIKEVILLE, KY	105	BOWLING GREEN, KY	$9.48
9	PIKEVILLE, KY	106	NEW ORLEANS, LA	$15.39
9	PIKEVILLE, KY	107	LEWISTON, ME	$20.39
9	PIKEVILLE, KY	112	FREDERICK, MD	$12.59
9	PIKEVILLE, KY	113	HAGERSTOWN, MD	$12.51
9	PIKEVILLE, KY	114	SALISBURY, MD	$14.37

Table F5. Transport rates for coal shipments by unit train—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
9	PIKEVILLE, KY	115	BALTIMORE, MD	$13.14
9	PIKEVILLE, KY	116	BRANDYWINE, MD	$13.02
9	PIKEVILLE, KY	117	PITTSFIELD, MA	$16.77
9	PIKEVILLE, KY	118	WORCESTER, MA	$17.49
9	PIKEVILLE, KY	119	BOSTON, MA	$18.10
9	PIKEVILLE, KY	120	PROVIDENCE, RI	$17.45
9	PIKEVILLE, KY	121	MANCHESTER, NH	$18.53
9	PIKEVILLE, KY	122	GRAND RAPIDS, MI	$10.68
9	PIKEVILLE, KY	123	DETROIT, MI	$9.33
9	PIKEVILLE, KY	124	TOLEDO, OH	$10.49
9	PIKEVILLE, KY	125	KALAMAZOO, MI	$10.45
9	PIKEVILLE, KY	126	MARQUETTE, MI	$15.90
9	PIKEVILLE, KY	129	DULUTH, MN	$16.94
9	PIKEVILLE, KY	131	MINNEAPOLIS, MN	$18.93
9	PIKEVILLE, KY	134	GREENVILLE, MS	$13.84
9	PIKEVILLE, KY	135	TUPELO, MS	$11.47
9	PIKEVILLE, KY	136	GREENSBORO, NC	$13.40
9	PIKEVILLE, KY	149	PLYMOUTH, NH	$14.01
9	PIKEVILLE, KY	150	ATLANTIC CITY, NJ	$15.65
9	PIKEVILLE, KY	151	SCRANTON, PA	$15.62
9	PIKEVILLE, KY	158	SYRACUSE, NY	$19.82
9	PIKEVILLE, KY	159	BURLINGTON, VT	$12.87
9	PIKEVILLE, KY	160	ROCHESTER, NY	$17.81
9	PIKEVILLE, KY	161	ALBANY, NY	$13.44
9	PIKEVILLE, KY	162	BUFFALO, NY	$16.07
9	PIKEVILLE, KY	163	BINGHAMTON, NY	$13.74
9	PIKEVILLE, KY	164	OLEAN, NY	$9.43
9	PIKEVILLE, KY	165	HICKORY, NC	$11.62
9	PIKEVILLE, KY	166	RALEIGH, NC	$7.97
9	PIKEVILLE, KY	167	CHARLOTTE, NC	$10.77
9	PIKEVILLE, KY	168	ELIZABETH CITY, NC	$8.54
9	PIKEVILLE, KY	169	FAYETTEVILLE, NC	$10.01
9	PIKEVILLE, KY	170	WILMINGTON, NC	$10.83
9	PIKEVILLE, KY	171	ASHEVILLE, NC	$6.55
9	PIKEVILLE, KY	173	DAYTON, OH	$7.25
9	PIKEVILLE, KY	174	CLEVELAND, OH	$10.73
9	PIKEVILLE, KY	175	MANSFIELD, OH	$7.91
9	PIKEVILLE, KY	176	COLUMBUS, OH	$6.81
9	PIKEVILLE, KY	177	LIMA, OH	$8.10
9	PIKEVILLE, KY	178	DUBOIS, PA	$12.83
9	PIKEVILLE, KY	179	PARKERSBURG, WV	$7.95
9	PIKEVILLE, KY	180	SANDUSKY, OH	$8.52
9	PIKEVILLE, KY	181	WHEELING, WV	$9.33
9	PIKEVILLE, KY	182	CHILLICOTHE, OH	$6.11
9	PIKEVILLE, KY	183	ZANESVILLE, OH	$7.19
9	PIKEVILLE, KY	195	ALTOONA, PA	$12.61
9	PIKEVILLE, KY	196	HARRISBURG, PA	$13.57
9	PIKEVILLE, KY	197	PITTSBURGH, PA	$8.52
9	PIKEVILLE, KY	198	SUMTER, SC	$9.41
9	PIKEVILLE, KY	199	CHARLESTON, SC	$10.73
9	PIKEVILLE, KY	200	COLUMBIA, SC	$8.78
9	PIKEVILLE, KY	201	FLORENCE, SC	$9.77
9	PIKEVILLE, KY	202	SPARTANBURG, SC	$7.34
9	PIKEVILLE, KY	203	GREENWOOD, SC	$8.40
9	PIKEVILLE, KY	204	GEORGETOWN, SC	$10.94
9	PIKEVILLE, KY	207	KNOXVILLE, TN	$8.29
9	PIKEVILLE, KY	208	NASHVILLE, TN	$11.58
9	PIKEVILLE, KY	209	JACKSON, TN	$13.86
9	PIKEVILLE, KY	221	MONTPELIER, VT	$18.85
9	PIKEVILLE, KY	222	LYNCHBURG, VA	$9.71
9	PIKEVILLE, KY	223	NORFOLK, VA	$12.49
9	PIKEVILLE, KY	224	FREDERICKSBURG, VA	$12.30
9	PIKEVILLE, KY	225	RICHMOND, VA	$11.51
9	PIKEVILLE, KY	226	ROANOKE, VA	$9.71
9	PIKEVILLE, KY	231	ELKINS, WV	$9.84
9	PIKEVILLE, KY	232	GASSAWAY, WV	$8.25
9	PIKEVILLE, KY	233	MARTINSBURG, WV	$11.51
9	PIKEVILLE, KY	234	CHARLESTON, WV	$6.87
9	PIKEVILLE, KY	235	CLARKSBURG, WV	$9.14
9	PIKEVILLE, KY	236	BECKLEY, WV	$7.67
9	PIKEVILLE, KY	237	GREEN BAY, WI	$14.61
9	PIKEVILLE, KY	238	WAUSAU, WI	$14.88
9	PIKEVILLE, KY	239	MILWAUKEE, WI	$11.66
9	PIKEVILLE, KY	240	MADISON, WI	$12.25
10	MIDDLESBORO, KY	1	JACKSON, AL	$11.45
10	MIDDLESBORO, KY	3	GADSDEN, AL	$7.76
10	MIDDLESBORO, KY	4	BIRMINGHAM, AL	$8.31
10	MIDDLESBORO, KY	5	MOBILE, AL	$12.36
10	MIDDLESBORO, KY	7	DECATUR, AL	$8.23
10	MIDDLESBORO, KY	47	WASHINGTON, DC	$13.93
10	MIDDLESBORO, KY	50	W. PALM BEACH, FL	$18.95
10	MIDDLESBORO, KY	51	FT. MEYER, FL	$18.59
10	MIDDLESBORO, KY	52	TAMPA, FL	$15.67
10	MIDDLESBORO, KY	53	AUGUSTA, GA	$11.13
10	MIDDLESBORO, KY	54	MACON, GA	$10.64
10	MIDDLESBORO, KY	55	CHATTANOOGA, TN	$6.36
10	MIDDLESBORO, KY	56	ATLANTA, GA	$10.24
10	MIDDLESBORO, KY	58	SAVANNAH, GA	$12.80
10	MIDDLESBORO, KY	59	ALBANY, GA	$12.04
10	MIDDLESBORO, KY	73	ROCKFORD, IL	$15.01
10	MIDDLESBORO, KY	78	LOUISVILLE, KY	$7.95
10	MIDDLESBORO, KY	79	CINCINNATI, OH	$7.91
10	MIDDLESBORO, KY	101	HAZARD, KY	$8.12

Table F5. Transport rates for coal shipments by unit train—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
10	MIDDLESBORO, KY	102	LEXINGTON, KY	$7.40
10	MIDDLESBORO, KY	103	HUNTINGTON, WV	$9.33
10	MIDDLESBORO, KY	104	ELIZABETHTOWN, KY	$7.17
10	MIDDLESBORO, KY	105	BOWLING GREEN, KY	$8.25
10	MIDDLESBORO, KY	122	GRAND RAPIDS, MI	$11.94
10	MIDDLESBORO, KY	124	TOLEDO, OH	$12.61
10	MIDDLESBORO, KY	125	KALAMAZOO, MI	$11.72
10	MIDDLESBORO, KY	162	BUFFALO, NY	$18.08
10	MIDDLESBORO, KY	165	HICKORY, NC	$13.14
10	MIDDLESBORO, KY	167	CHARLOTTE, NC	$12.30
10	MIDDLESBORO, KY	171	ASHEVILLE, NC	$6.93
10	MIDDLESBORO, KY	199	CHARLESTON, SC	$11.34
10	MIDDLESBORO, KY	200	COLUMBIA, SC	$9.39
10	MIDDLESBORO, KY	201	FLORENCE, SC	$10.64
10	MIDDLESBORO, KY	202	SPARTANBURG, SC	$7.97
10	MIDDLESBORO, KY	204	GEORGETOWN, SC	$11.81
10	MIDDLESBORO, KY	207	KNOXVILLE, TN	$7.29
10	MIDDLESBORO, KY	208	NASHVILLE, TN	$10.58
10	MIDDLESBORO, KY	223	NORFOLK, VA	$14.01
10	MIDDLESBORO, KY	225	RICHMOND, VA	$13.06
11	BEATTYVILLE, KY	52	TAMPA, FL	$19.61
11	BEATTYVILLE, KY	55	CHATTANOOGA, TN	$9.88
11	BEATTYVILLE, KY	78	LOUISVILLE, KY	$8.35
11	BEATTYVILLE, KY	79	CINCINNATI, OH	$7.99
11	BEATTYVILLE, KY	101	HAZARD, KY	$6.38
11	BEATTYVILLE, KY	102	LEXINGTON, KY	$7.48
11	BEATTYVILLE, KY	103	HUNTINGTON, WV	$9.41
11	BEATTYVILLE, KY	104	ELIZABETHTOWN, KY	$8.31
11	BEATTYVILLE, KY	105	BOWLING GREEN, KY	$9.41
11	BEATTYVILLE, KY	173	DAYTON, OH	$8.73
11	BEATTYVILLE, KY	175	MANSFIELD, OH	$10.52
11	BEATTYVILLE, KY	176	COLUMBUS, OH	$9.65
11	BEATTYVILLE, KY	177	LIMA, OH	$9.82
11	BEATTYVILLE, KY	182	CHILLICOTHE, OH	$9.22
11	BEATTYVILLE, KY	183	ZANESVILLE, OH	$10.49
11	BEATTYVILLE, KY	207	KNOXVILLE, TN	$11.24
11	BEATTYVILLE, KY	234	CHARLESTON, WV	$10.18
12	SALYERSVILLE, KY	3	GADSDEN, AL	$6.78
12	SALYERSVILLE, KY	4	BIRMINGHAM, AL	$7.36
12	SALYERSVILLE, KY	5	MOBILE, AL	$11.41
12	SALYERSVILLE, KY	7	DECATUR, AL	$7.25
12	SALYERSVILLE, KY	53	AUGUSTA, GA	$8.54
12	SALYERSVILLE, KY	54	MACON, GA	$9.67
12	SALYERSVILLE, KY	55	CHATTANOOGA, TN	$5.41
12	SALYERSVILLE, KY	56	ATLANTA, GA	$9.29
12	SALYERSVILLE, KY	57	ATHENS, GA	$8.90
12	SALYERSVILLE, KY	65	PEORIA, IL	$8.18
12	SALYERSVILLE, KY	66	DANVILLE, IL	$9.01
12	SALYERSVILLE, KY	72	PADUCAH, KY	$10.30
12	SALYERSVILLE, KY	76	MUNCIE, IN	$7.40
12	SALYERSVILLE, KY	77	EVANSVILLE, IN	$8.88
12	SALYERSVILLE, KY	78	LOUISVILLE, KY	$5.51
12	SALYERSVILLE, KY	79	CINCINNATI, OH	$4.26
12	SALYERSVILLE, KY	80	INDIANAPOLIS, IN	$7.72
12	SALYERSVILLE, KY	81	FT. WAYNE, IN	$7.93
12	SALYERSVILLE, KY	82	SOUTH BEND, IN	$9.22
12	SALYERSVILLE, KY	83	BLOOMINGTON, IN	$8.37
12	SALYERSVILLE, KY	84	TERRA HAUTE, IN	$8.80
12	SALYERSVILLE, KY	101	HAZARD, KY	$5.36
12	SALYERSVILLE, KY	102	LEXINGTON, KY	$4.64
12	SALYERSVILLE, KY	103	HUNTINGTON, WV	$3.22
12	SALYERSVILLE, KY	104	ELIZABETHTOWN, KY	$5.49
12	SALYERSVILLE, KY	105	BOWLING GREEN, KY	$6.57
12	SALYERSVILLE, KY	107	LEWISTON, ME	$18.21
12	SALYERSVILLE, KY	122	GRAND RAPIDS, MI	$7.78
12	SALYERSVILLE, KY	123	DETROIT, MI	$6.42
12	SALYERSVILLE, KY	124	TOLEDO, OH	$7.59
12	SALYERSVILLE, KY	125	KALAMAZOO, MI	$7.57
12	SALYERSVILLE, KY	135	TUPELO, MS	$9.52
12	SALYERSVILLE, KY	164	OLEAN, NY	$7.48
12	SALYERSVILLE, KY	166	RALEIGH, NC	$6.02
12	SALYERSVILLE, KY	167	CHARLOTTE, NC	$8.80
12	SALYERSVILLE, KY	168	ELIZABETH CITY, NC	$6.59
12	SALYERSVILLE, KY	169	FAYETTEVILLE, NC	$8.06
12	SALYERSVILLE, KY	170	WILMINGTON, NC	$8.88
12	SALYERSVILLE, KY	171	ASHEVILLE, NC	$4.60
12	SALYERSVILLE, KY	173	DAYTON, OH	$4.37
12	SALYERSVILLE, KY	174	CLEVELAND, OH	$7.82
12	SALYERSVILLE, KY	175	MANSFIELD, OH	$5.02
12	SALYERSVILLE, KY	176	COLUMBUS, OH	$3.90
12	SALYERSVILLE, KY	177	LIMA, OH	$5.19
12	SALYERSVILLE, KY	179	PARKERSBURG, WV	$5.07
12	SALYERSVILLE, KY	180	SANDUSKY, OH	$5.62
12	SALYERSVILLE, KY	181	WHEELING, WV	$6.44
12	SALYERSVILLE, KY	182	CHILLICOTHE, OH	$3.22
12	SALYERSVILLE, KY	183	ZANESVILLE, OH	$4.28
12	SALYERSVILLE, KY	197	PITTSBURGH, PA	$5.62
12	SALYERSVILLE, KY	198	SUMTER, SC	$7.46
12	SALYERSVILLE, KY	199	CHARLESTON, SC	$8.76
12	SALYERSVILLE, KY	200	COLUMBIA, SC	$6.81
12	SALYERSVILLE, KY	201	FLORENCE, SC	$7.80
12	SALYERSVILLE, KY	202	SPARTANBURG, SC	$5.38
12	SALYERSVILLE, KY	203	GREENWOOD, SC	$6.44

Table F5. Transport rates for coal shipments by unit train—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
12	SALYERSVILLE, KY	204	GEORGETOWN, SC	$8.99
12	SALYERSVILLE, KY	207	KNOXVILLE, TN	$6.32
12	SALYERSVILLE, KY	208	NASHVILLE, TN	$9.60
12	SALYERSVILLE, KY	222	LYNCHBURG, VA	$7.74
12	SALYERSVILLE, KY	226	ROANOKE, VA	$7.74
12	SALYERSVILLE, KY	231	ELKINS, WV	$6.93
12	SALYERSVILLE, KY	232	GASSAWAY, WV	$5.36
12	SALYERSVILLE, KY	233	MARTINSBURG, WV	$9.05
12	SALYERSVILLE, KY	234	CHARLESTON, WV	$3.96
12	SALYERSVILLE, KY	235	CLARKSBURG, WV	$6.23
12	SALYERSVILLE, KY	236	BECKLEY, WV	$5.34
12	SALYERSVILLE, KY	237	GREEN BAY, WI	$11.72
12	SALYERSVILLE, KY	239	MILWAUKEE, WI	$8.76
12	SALYERSVILLE, KY	240	MADISON, WI	$9.35
13	PLEASANTVILLE, OH	3	GADSDEN, AL	$10.68
13	PLEASANTVILLE, OH	4	BIRMINGHAM, AL	$11.26
13	PLEASANTVILLE, OH	5	MOBILE, AL	$15.45
13	PLEASANTVILLE, OH	7	DECATUR, AL	$10.43
13	PLEASANTVILLE, OH	55	CHATTANOOGA, TN	$9.31
13	PLEASANTVILLE, OH	65	PEORIA, IL	$8.16
13	PLEASANTVILLE, OH	66	DANVILLE, IL	$8.99
13	PLEASANTVILLE, OH	67	CHICAGO, IL	$9.58
13	PLEASANTVILLE, OH	70	ST. LOUIS, MO	$11.26
13	PLEASANTVILLE, OH	71	LASALLE, IL	$10.66
13	PLEASANTVILLE, OH	73	ROCKFORD, IL	$10.79
13	PLEASANTVILLE, OH	75	SPRINGFIELD, IL	$10.75
13	PLEASANTVILLE, OH	76	MUNCIE, IN	$7.23
13	PLEASANTVILLE, OH	77	EVANSVILLE, IN	$10.18
13	PLEASANTVILLE, OH	78	LOUISVILLE, KY	$6.83
13	PLEASANTVILLE, OH	79	CINCINNATI, OH	$4.90
13	PLEASANTVILLE, OH	80	INDIANAPOLIS, IN	$7.70
13	PLEASANTVILLE, OH	81	FT. WAYNE, IN	$7.34
13	PLEASANTVILLE, OH	82	SOUTH BEND, IN	$8.63
13	PLEASANTVILLE, OH	83	BLOOMINGTON, IN	$8.52
13	PLEASANTVILLE, OH	84	TERRA HAUTE, IN	$8.78
13	PLEASANTVILLE, OH	101	HAZARD, KY	$8.01
13	PLEASANTVILLE, OH	102	LEXINGTON, KY	$6.81
13	PLEASANTVILLE, OH	103	HUNTINGTON, WV	$6.06
13	PLEASANTVILLE, OH	104	ELIZABETHTOWN, KY	$6.93
13	PLEASANTVILLE, OH	105	BOWLING GREEN, KY	$8.01
13	PLEASANTVILLE, OH	107	LEWISTON, ME	$17.60
13	PLEASANTVILLE, OH	112	FREDERICK, MD	$10.71
13	PLEASANTVILLE, OH	113	HAGERSTOWN, MD	$10.15
13	PLEASANTVILLE, OH	122	GRAND RAPIDS, MI	$7.17
13	PLEASANTVILLE, OH	123	DETROIT, MI	$5.75
13	PLEASANTVILLE, OH	124	TOLEDO, OH	$6.91
13	PLEASANTVILLE, OH	125	KALAMAZOO, MI	$6.97
13	PLEASANTVILLE, OH	136	GREENSBORO, NC	$10.75
13	PLEASANTVILLE, OH	159	BURLINGTON, VT	$9.14
13	PLEASANTVILLE, OH	161	ALBANY, NY	$9.71
13	PLEASANTVILLE, OH	163	BINGHAMTON, NY	$9.86
13	PLEASANTVILLE, OH	166	RALEIGH, NC	$11.09
13	PLEASANTVILLE, OH	168	ELIZABETH CITY, NC	$10.01
13	PLEASANTVILLE, OH	171	ASHEVILLE, NC	$9.75
13	PLEASANTVILLE, OH	173	DAYTON, OH	$4.28
13	PLEASANTVILLE, OH	174	CLEVELAND, OH	$7.00
13	PLEASANTVILLE, OH	175	MANSFIELD, OH	$4.05
13	PLEASANTVILLE, OH	176	COLUMBUS, OH	$3.29
13	PLEASANTVILLE, OH	177	LIMA, OH	$4.60
13	PLEASANTVILLE, OH	178	DUBOIS, PA	$9.20
13	PLEASANTVILLE, OH	179	PARKERSBURG, WV	$5.28
13	PLEASANTVILLE, OH	180	SANDUSKY, OH	$4.79
13	PLEASANTVILLE, OH	181	WHEELING, WV	$5.72
13	PLEASANTVILLE, OH	182	CHILLICOTHE, OH	$3.75
13	PLEASANTVILLE, OH	183	ZANESVILLE, OH	$3.43
13	PLEASANTVILLE, OH	195	ALTOONA, PA	$9.01
13	PLEASANTVILLE, OH	196	HARRISBURG, PA	$10.98
13	PLEASANTVILLE, OH	197	PITTSBURGH, PA	$4.92
13	PLEASANTVILLE, OH	202	SPARTANBURG, SC	$10.54
13	PLEASANTVILLE, OH	207	KNOXVILLE, TN	$11.07
13	PLEASANTVILLE, OH	208	NASHVILLE, TN	$11.21
13	PLEASANTVILLE, OH	222	LYNCHBURG, VA	$11.02
13	PLEASANTVILLE, OH	226	ROANOKE, VA	$11.02
13	PLEASANTVILLE, OH	231	ELKINS, WV	$7.55
13	PLEASANTVILLE, OH	232	GASSAWAY, WV	$7.67
13	PLEASANTVILLE, OH	233	MARTINSBURG, WV	$9.29
13	PLEASANTVILLE, OH	234	CHARLESTON, WV	$6.28
13	PLEASANTVILLE, OH	235	CLARKSBURG, WV	$6.49
13	PLEASANTVILLE, OH	236	BECKLEY, WV	$7.65
13	PLEASANTVILLE, OH	237	GREEN BAY, WI	$11.32
13	PLEASANTVILLE, OH	239	MILWAUKEE, WI	$8.37
13	PLEASANTVILLE, OH	240	MADISON, WI	$8.95
14	CADIZ, OH	76	MUNCIE, IN	$8.54
14	CADIZ, OH	78	LOUISVILLE, KY	$8.16
14	CADIZ, OH	79	CINCINNATI, OH	$6.25
14	CADIZ, OH	81	FT. WAYNE, IN	$8.29
14	CADIZ, OH	102	LEXINGTON, KY	$8.14
14	CADIZ, OH	103	HUNTINGTON, WV	$7.21
14	CADIZ, OH	104	ELIZABETHTOWN, KY	$8.27
14	CADIZ, OH	122	GRAND RAPIDS, MI	$7.42
14	CADIZ, OH	123	DETROIT, MI	$6.00
14	CADIZ, OH	124	TOLEDO, OH	$7.17

Table F5. Transport rates for coal shipments by unit train—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
14	CADIZ, OH	125	KALAMAZOO, MI	$7.55
14	CADIZ, OH	159	BURLINGTON, VT	$8.03
14	CADIZ, OH	173	DAYTON, OH	$5.60
14	CADIZ, OH	174	CLEVELAND, OH	$6.11
14	CADIZ, OH	175	MANSFIELD, OH	$4.39
14	CADIZ, OH	176	COLUMBUS, OH	$4.60
14	CADIZ, OH	177	LIMA, OH	$5.70
14	CADIZ, OH	178	DUBOIS, PA	$7.42
14	CADIZ, OH	179	PARKERSBURG, WV	$5.77
14	CADIZ, OH	180	SANDUSKY, OH	$4.79
14	CADIZ, OH	181	WHEELING, WV	$4.35
14	CADIZ, OH	182	CHILLICOTHE, OH	$5.30
14	CADIZ, OH	183	ZANESVILLE, OH	$4.03
14	CADIZ, OH	195	ALTOONA, PA	$7.23
14	CADIZ, OH	197	PITTSBURGH, PA	$3.16
14	CADIZ, OH	231	ELKINS, WV	$6.64
14	CADIZ, OH	232	GASSAWAY, WV	$7.31
14	CADIZ, OH	233	MARTINSBURG, WV	$7.95
14	CADIZ, OH	234	CHARLESTON, WV	$7.42
14	CADIZ, OH	235	CLARKSBURG, WV	$5.83
15	YOUNGSTOWN, OH	123	DETROIT, MI	$8.93
15	YOUNGSTOWN, OH	150	ATLANTIC CITY, NJ	$13.19
15	YOUNGSTOWN, OH	164	OLEAN, NY	$17.79
15	YOUNGSTOWN, OH	173	DAYTON, OH	$9.20
15	YOUNGSTOWN, OH	174	CLEVELAND, OH	$8.48
15	YOUNGSTOWN, OH	175	MANSFIELD, OH	$7.40
15	YOUNGSTOWN, OH	176	COLUMBUS, OH	$8.42
15	YOUNGSTOWN, OH	177	LIMA, OH	$8.67
15	YOUNGSTOWN, OH	178	DUBOIS, PA	$9.65
15	YOUNGSTOWN, OH	180	SANDUSKY, OH	$7.55
15	YOUNGSTOWN, OH	181	WHEELING, WV	$8.29
15	YOUNGSTOWN, OH	182	CHILLICOTHE, OH	$9.09
15	YOUNGSTOWN, OH	183	ZANESVILLE, OH	$7.82
15	YOUNGSTOWN, OH	197	PITTSBURGH, PA	$5.85
16	PITTSBURGH, PA	5	MOBILE, AL	$20.90
16	PITTSBURGH, PA	7	DECATUR, AL	$15.88
16	PITTSBURGH, PA	41	NORWICH, CT	$14.67
16	PITTSBURGH, PA	42	HARTFORD, CT	$14.25
16	PITTSBURGH, PA	43	NEW YORK, NY	$13.95
16	PITTSBURGH, PA	44	TORRINGTON, CT	$14.23
16	PITTSBURGH, PA	45	PHILADEPHIA, PA	$12.78
16	PITTSBURGH, PA	46	DOVER, DE	$13.04
16	PITTSBURGH, PA	47	WASHINGTON, DC	$12.68
16	PITTSBURGH, PA	50	W. PALM BEACH, FL	$26.50
16	PITTSBURGH, PA	51	FT. MEYER, FL	$26.63
16	PITTSBURGH, PA	55	CHATTANOOGA, TN	$14.76
16	PITTSBURGH, PA	65	PEORIA, IL	$13.33
16	PITTSBURGH, PA	66	DANVILLE, IL	$14.42
16	PITTSBURGH, PA	67	CHICAGO, IL	$14.39
16	PITTSBURGH, PA	76	MUNCIE, IN	$12.66
16	PITTSBURGH, PA	77	EVANSVILLE, IN	$15.65
16	PITTSBURGH, PA	78	LOUISVILLE, KY	$12.27
16	PITTSBURGH, PA	79	CINCINNATI, OH	$10.37
16	PITTSBURGH, PA	80	INDIANAPOLIS, IN	$13.10
16	PITTSBURGH, PA	81	FT. WAYNE, IN	$12.19
16	PITTSBURGH, PA	82	SOUTH BEND, IN	$13.25
16	PITTSBURGH, PA	83	BLOOMINGTON, IN	$13.95
16	PITTSBURGH, PA	84	TERRA HAUTE, IN	$14.20
16	PITTSBURGH, PA	101	HAZARD, KY	$13.36
16	PITTSBURGH, PA	102	LEXINGTON, KY	$12.25
16	PITTSBURGH, PA	103	HUNTINGTON, WV	$10.94
16	PITTSBURGH, PA	104	ELIZABETHTOWN, KY	$12.38
16	PITTSBURGH, PA	105	BOWLING GREEN, KY	$13.48
16	PITTSBURGH, PA	107	LEWISTON, ME	$18.21
16	PITTSBURGH, PA	112	FREDERICK, MD	$11.26
16	PITTSBURGH, PA	113	HAGERSTOWN, MD	$10.71
16	PITTSBURGH, PA	114	SALISBURY, MD	$13.89
16	PITTSBURGH, PA	115	BALTIMORE, MD	$12.11
16	PITTSBURGH, PA	116	BRANDYWINE, MD	$13.02
16	PITTSBURGH, PA	117	PITTSFIELD, MA	$13.82
16	PITTSBURGH, PA	119	BOSTON, MA	$16.05
16	PITTSBURGH, PA	120	PROVIDENCE, RI	$15.39
16	PITTSBURGH, PA	121	MANCHESTER, NH	$16.35
16	PITTSBURGH, PA	122	GRAND RAPIDS, MI	$11.34
16	PITTSBURGH, PA	123	DETROIT, MI	$9.92
16	PITTSBURGH, PA	124	TOLEDO, OH	$11.09
16	PITTSBURGH, PA	125	KALAMAZOO, MI	$11.47
16	PITTSBURGH, PA	129	DULUTH, MN	$18.27
16	PITTSBURGH, PA	149	PLYMOUTH, NH	$12.19
16	PITTSBURGH, PA	150	ATLANTIC CITY, NJ	$12.19
16	PITTSBURGH, PA	151	SCRANTON, PA	$13.14
16	PITTSBURGH, PA	158	SYRACUSE, NY	$16.79
16	PITTSBURGH, PA	159	BURLINGTON, VT	$10.41
16	PITTSBURGH, PA	160	ROCHESTER, NY	$14.73
16	PITTSBURGH, PA	161	ALBANY, NY	$10.98
16	PITTSBURGH, PA	162	BUFFALO, NY	$12.57
16	PITTSBURGH, PA	163	BINGHAMTON, NY	$10.73
16	PITTSBURGH, PA	164	OLEAN, NY	$17.15
16	PITTSBURGH, PA	166	RALEIGH, NC	$14.61
16	PITTSBURGH, PA	167	CHARLOTTE, NC	$13.74
16	PITTSBURGH, PA	168	ELIZABETH CITY, NC	$13.19
16	PITTSBURGH, PA	169	FAYETTEVILLE, NC	$14.39
16	PITTSBURGH, PA	171	ASHEVILLE, NC	$14.84

Table F5. Transport rates for coal shipments by unit train—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
16	PITTSBURGH, PA	173	DAYTON, OH	$9.71
16	PITTSBURGH, PA	174	CLEVELAND, OH	$9.46
16	PITTSBURGH, PA	175	MANSFIELD, OH	$8.37
16	PITTSBURGH, PA	176	COLUMBUS, OH	$8.71
16	PITTSBURGH, PA	177	LIMA, OH	$9.65
16	PITTSBURGH, PA	178	DUBOIS, PA	$9.33
16	PITTSBURGH, PA	179	PARKERSBURG, WV	$9.12
16	PITTSBURGH, PA	180	SANDUSKY, OH	$8.52
16	PITTSBURGH, PA	181	WHEELING, WV	$7.00
16	PITTSBURGH, PA	182	CHILLICOTHE, OH	$9.22
16	PITTSBURGH, PA	183	ZANESVILLE, OH	$7.89
16	PITTSBURGH, PA	195	ALTOONA, PA	$9.14
16	PITTSBURGH, PA	196	HARRISBURG, PA	$11.11
16	PITTSBURGH, PA	197	PITTSBURGH, PA	$4.83
16	PITTSBURGH, PA	208	NASHVILLE, TN	$16.66
16	PITTSBURGH, PA	222	LYNCHBURG, VA	$13.80
16	PITTSBURGH, PA	224	FREDERICKSBURG, VA	$13.31
16	PITTSBURGH, PA	225	RICHMOND, VA	$14.12
16	PITTSBURGH, PA	226	ROANOKE, VA	$13.80
16	PITTSBURGH, PA	231	ELKINS, WV	$9.60
16	PITTSBURGH, PA	232	GASSAWAY, WV	$10.30
16	PITTSBURGH, PA	233	MARTINSBURG, WV	$9.84
16	PITTSBURGH, PA	234	CHARLESTON, WV	$11.15
16	PITTSBURGH, PA	235	CLARKSBURG, WV	$8.99
16	PITTSBURGH, PA	236	BECKLEY, WV	$12.53
16	PITTSBURGH, PA	239	MILWAUKEE, WI	$13.19
16	PITTSBURGH, PA	240	MADISON, WI	$13.78
17	KITTANNING, PA	41	NORWICH, CT	$17.55
17	KITTANNING, PA	42	HARTFORD, CT	$17.15
17	KITTANNING, PA	43	NEW YORK, NY	$16.85
17	KITTANNING, PA	44	TORRINGTON, CT	$17.13
17	KITTANNING, PA	45	PHILADEPHIA, PA	$15.69
17	KITTANNING, PA	46	DOVER, DE	$15.92
17	KITTANNING, PA	47	WASHINGTON, DC	$15.94
17	KITTANNING, PA	73	ROCKFORD, IL	$18.89
17	KITTANNING, PA	107	LEWISTON, ME	$21.12
17	KITTANNING, PA	116	BRANDYWINE, MD	$16.30
17	KITTANNING, PA	123	DETROIT, MI	$13.19
17	KITTANNING, PA	129	DULUTH, MN	$21.56
17	KITTANNING, PA	150	ATLANTIC CITY, NJ	$15.09
17	KITTANNING, PA	151	SCRANTON, PA	$14.84
17	KITTANNING, PA	158	SYRACUSE, NY	$19.69
17	KITTANNING, PA	160	ROCHESTER, NY	$17.62
17	KITTANNING, PA	161	ALBANY, NY	$12.72
17	KITTANNING, PA	162	BUFFALO, NY	$15.48
17	KITTANNING, PA	163	BINGHAMTON, NY	$12.89
17	KITTANNING, PA	164	OLEAN, NY	$20.42
17	KITTANNING, PA	175	MANSFIELD, OH	$11.68
17	KITTANNING, PA	176	COLUMBUS, OH	$12.21
17	KITTANNING, PA	178	DUBOIS, PA	$11.55
17	KITTANNING, PA	179	PARKERSBURG, WV	$12.64
17	KITTANNING, PA	180	SANDUSKY, OH	$11.81
17	KITTANNING, PA	181	WHEELING, WV	$8.48
17	KITTANNING, PA	183	ZANESVILLE, OH	$11.41
17	KITTANNING, PA	195	ALTOONA, PA	$9.54
17	KITTANNING, PA	196	HARRISBURG, PA	$14.01
17	KITTANNING, PA	197	PITTSBURGH, PA	$8.37
17	KITTANNING, PA	231	ELKINS, WV	$13.02
17	KITTANNING, PA	233	MARTINSBURG, WV	$13.12
17	KITTANNING, PA	235	CLARKSBURG, WV	$12.40
17	KITTANNING, PA	237	GREEN BAY, WI	$18.80
17	KITTANNING, PA	239	MILWAUKEE, WI	$16.47
18	SHARON, PA	41	NORWICH, CT	$16.62
18	SHARON, PA	42	HARTFORD, CT	$16.01
18	SHARON, PA	44	TORRINGTON, CT	$16.56
18	SHARON, PA	73	ROCKFORD, IL	$16.24
18	SHARON, PA	79	CINCINNATI, OH	$11.53
18	SHARON, PA	123	DETROIT, MI	$10.54
18	SHARON, PA	158	SYRACUSE, NY	$17.68
18	SHARON, PA	159	BURLINGTON, VT	$10.75
18	SHARON, PA	160	ROCHESTER, NY	$15.67
18	SHARON, PA	161	ALBANY, NY	$11.34
18	SHARON, PA	162	BUFFALO, NY	$14.03
18	SHARON, PA	163	BINGHAMTON, NY	$11.28
18	SHARON, PA	164	OLEAN, NY	$19.40
18	SHARON, PA	173	DAYTON, OH	$10.79
18	SHARON, PA	174	CLEVELAND, OH	$7.63
18	SHARON, PA	175	MANSFIELD, OH	$9.01
18	SHARON, PA	176	COLUMBUS, OH	$10.01
18	SHARON, PA	177	LIMA, OH	$10.28
18	SHARON, PA	178	DUBOIS, PA	$10.09
18	SHARON, PA	179	PARKERSBURG, WV	$11.15
18	SHARON, PA	180	SANDUSKY, OH	$9.14
18	SHARON, PA	181	WHEELING, WV	$9.75
18	SHARON, PA	182	CHILLICOTHE, OH	$10.71
18	SHARON, PA	183	ZANESVILLE, OH	$9.43
18	SHARON, PA	195	ALTOONA, PA	$11.60
18	SHARON, PA	197	PITTSBURGH, PA	$7.31
18	SHARON, PA	235	CLARKSBURG, WV	$8.82
18	SHARON, PA	239	MILWAUKEE, WI	$13.82
19	STATE COLLEGE, PA	41	NORWICH, CT	$15.16
19	STATE COLLEGE, PA	42	HARTFORD, CT	$14.73
19	STATE COLLEGE, PA	43	NEW YORK, NY	$14.44

Table F5. Transport rates for coal shipments by unit train—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
19	STATE COLLEGE, PA	44	TORRINGTON, CT	$14.71
19	STATE COLLEGE, PA	45	PHILADEPHIA, PA	$13.21
19	STATE COLLEGE, PA	46	DOVER, DE	$13.42
19	STATE COLLEGE, PA	47	WASHINGTON, DC	$12.49
19	STATE COLLEGE, PA	78	LOUISVILLE, KY	$14.80
19	STATE COLLEGE, PA	79	CINCINNATI, OH	$12.89
19	STATE COLLEGE, PA	102	LEXINGTON, KY	$14.78
19	STATE COLLEGE, PA	103	HUNTINGTON, WV	$13.12
19	STATE COLLEGE, PA	107	LEWISTON, ME	$18.83
19	STATE COLLEGE, PA	112	FREDERICK, MD	$11.09
19	STATE COLLEGE, PA	113	HAGERSTOWN, MD	$10.54
19	STATE COLLEGE, PA	114	SALISBURY, MD	$14.27
19	STATE COLLEGE, PA	115	BALTIMORE, MD	$11.94
19	STATE COLLEGE, PA	116	BRANDYWINE, MD	$12.85
19	STATE COLLEGE, PA	117	PITTSFIELD, MA	$14.46
19	STATE COLLEGE, PA	122	GRAND RAPIDS, MI	$14.06
19	STATE COLLEGE, PA	123	DETROIT, MI	$12.64
19	STATE COLLEGE, PA	124	TOLEDO, OH	$13.80
19	STATE COLLEGE, PA	125	KALAMAZOO, MI	$14.18
19	STATE COLLEGE, PA	149	PLYMOUTH, NH	$12.61
19	STATE COLLEGE, PA	150	ATLANTIC CITY, NJ	$12.83
19	STATE COLLEGE, PA	151	SCRANTON, PA	$13.95
19	STATE COLLEGE, PA	158	SYRACUSE, NY	$17.41
19	STATE COLLEGE, PA	159	BURLINGTON, VT	$12.08
19	STATE COLLEGE, PA	160	ROCHESTER, NY	$15.35
19	STATE COLLEGE, PA	161	ALBANY, NY	$12.91
19	STATE COLLEGE, PA	162	BUFFALO, NY	$13.21
19	STATE COLLEGE, PA	163	BINGHAMTON, NY	$12.11
19	STATE COLLEGE, PA	164	OLEAN, NY	$16.98
19	STATE COLLEGE, PA	166	RALEIGH, NC	$14.44
19	STATE COLLEGE, PA	167	CHARLOTTE, NC	$13.57
19	STATE COLLEGE, PA	168	ELIZABETH CITY, NC	$13.02
19	STATE COLLEGE, PA	169	FAYETTEVILLE, NC	$14.23
19	STATE COLLEGE, PA	173	DAYTON, OH	$12.23
19	STATE COLLEGE, PA	174	CLEVELAND, OH	$12.19
19	STATE COLLEGE, PA	175	MANSFIELD, OH	$11.02
19	STATE COLLEGE, PA	176	COLUMBUS, OH	$11.24
19	STATE COLLEGE, PA	177	LIMA, OH	$12.34
19	STATE COLLEGE, PA	178	DUBOIS, PA	$10.64
19	STATE COLLEGE, PA	179	PARKERSBURG, WV	$11.30
19	STATE COLLEGE, PA	180	SANDUSKY, OH	$11.26
19	STATE COLLEGE, PA	181	WHEELING, WV	$10.22
19	STATE COLLEGE, PA	182	CHILLICOTHE, OH	$11.74
19	STATE COLLEGE, PA	183	ZANESVILLE, OH	$10.45
19	STATE COLLEGE, PA	195	ALTOONA, PA	$9.75
19	STATE COLLEGE, PA	196	HARRISBURG, PA	$11.62
19	STATE COLLEGE, PA	197	PITTSBURGH, PA	$7.57
19	STATE COLLEGE, PA	222	LYNCHBURG, VA	$13.63
19	STATE COLLEGE, PA	224	FREDERICKSBURG, VA	$13.14
19	STATE COLLEGE, PA	225	RICHMOND, VA	$13.95
19	STATE COLLEGE, PA	226	ROANOKE, VA	$13.63
19	STATE COLLEGE, PA	231	ELKINS, WV	$9.90
19	STATE COLLEGE, PA	232	GASSAWAY, WV	$11.21
19	STATE COLLEGE, PA	233	MARTINSBURG, WV	$9.67
19	STATE COLLEGE, PA	234	CHARLESTON, WV	$12.61
19	STATE COLLEGE, PA	235	CLARKSBURG, WV	$10.07
19	STATE COLLEGE, PA	236	BECKLEY, WV	$13.25
20	SOMERSET, PA	41	NORWICH, CT	$15.16
20	SOMERSET, PA	42	HARTFORD, CT	$14.73
20	SOMERSET, PA	43	NEW YORK, NY	$14.44
20	SOMERSET, PA	44	TORRINGTON, CT	$14.71
20	SOMERSET, PA	45	PHILADEPHIA, PA	$13.21
20	SOMERSET, PA	46	DOVER, DE	$13.42
20	SOMERSET, PA	47	WASHINGTON, DC	$12.49
20	SOMERSET, PA	78	LOUISVILLE, KY	$14.78
20	SOMERSET, PA	79	CINCINNATI, OH	$12.87
20	SOMERSET, PA	102	LEXINGTON, KY	$14.78
20	SOMERSET, PA	103	HUNTINGTON, WV	$13.12
20	SOMERSET, PA	112	FREDERICK, MD	$11.09
20	SOMERSET, PA	113	HAGERSTOWN, MD	$10.54
20	SOMERSET, PA	114	SALISBURY, MD	$14.27
20	SOMERSET, PA	115	BALTIMORE, MD	$11.94
20	SOMERSET, PA	116	BRANDYWINE, MD	$12.85
20	SOMERSET, PA	117	PITTSFIELD, MA	$14.46
20	SOMERSET, PA	122	GRAND RAPIDS, MI	$14.06
20	SOMERSET, PA	123	DETROIT, MI	$12.64
20	SOMERSET, PA	124	TOLEDO, OH	$13.80
20	SOMERSET, PA	125	KALAMAZOO, MI	$14.18
20	SOMERSET, PA	149	PLYMOUTH, NH	$12.61
20	SOMERSET, PA	150	ATLANTIC CITY, NJ	$12.83
20	SOMERSET, PA	151	SCRANTON, PA	$13.95
20	SOMERSET, PA	159	BURLINGTON, VT	$12.08
20	SOMERSET, PA	161	ALBANY, NY	$12.89
20	SOMERSET, PA	162	BUFFALO, NY	$13.21
20	SOMERSET, PA	163	BINGHAMTON, NY	$12.11
20	SOMERSET, PA	166	RALEIGH, NC	$14.44
20	SOMERSET, PA	167	CHARLOTTE, NC	$13.57
20	SOMERSET, PA	168	ELIZABETH CITY, NC	$13.00
20	SOMERSET, PA	169	FAYETTEVILLE, NC	$14.23
20	SOMERSET, PA	173	DAYTON, OH	$12.23
20	SOMERSET, PA	174	CLEVELAND, OH	$12.19
20	SOMERSET, PA	175	MANSFIELD, OH	$11.02
20	SOMERSET, PA	176	COLUMBUS, OH	$11.24

Table F5. Transport rates for coal shipments by unit train—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE * (1985 $/TON)
20	SOMERSET, PA	177	LIMA, OH	$12.34
20	SOMERSET, PA	178	DUBOIS, PA	$10.64
20	SOMERSET, PA	179	PARKERSBURG, WV	$11.30
20	SOMERSET, PA	180	SANDUSKY, OH	$11.26
20	SOMERSET, PA	181	WHEELING, WV	$10.22
20	SOMERSET, PA	182	CHILLICOTHE, OH	$11.74
20	SOMERSET, PA	183	ZANESVILLE, OH	$10.43
20	SOMERSET, PA	195	ALTOONA, PA	$9.75
20	SOMERSET, PA	196	HARRISBURG, PA	$11.62
20	SOMERSET, PA	197	PITTSBURGH, PA	$7.57
20	SOMERSET, PA	222	LYNCHBURG, VA	$13.63
20	SOMERSET, PA	224	FREDERICKSBURG, VA	$13.14
20	SOMERSET, PA	225	RICHMOND, VA	$13.95
20	SOMERSET, PA	226	ROANOKE, VA	$13.63
20	SOMERSET, PA	231	ELKINS, WV	$9.90
20	SOMERSET, PA	232	GASSAWAY, WV	$11.21
20	SOMERSET, PA	233	MARTINSBURG, WV	$9.67
20	SOMERSET, PA	234	CHARLESTON, WV	$12.59
20	SOMERSET, PA	235	CLARKSBURG, WV	$10.07
20	SOMERSET, PA	236	BECKLEY, WV	$13.25
21	CHARLESTON, WV	3	GADSDEN, AL	$12.93
21	CHARLESTON, WV	4	BIRMINGHAM, AL	$13.48
21	CHARLESTON, WV	7	DECATUR, AL	$13.40
21	CHARLESTON, WV	41	NORWICH, CT	$17.45
21	CHARLESTON, WV	42	HARTFORD, CT	$17.04
21	CHARLESTON, WV	43	NEW YORK, NY	$16.75
21	CHARLESTON, WV	44	TORRINGTON, CT	$17.00
21	CHARLESTON, WV	45	PHILADEPHIA, PA	$15.37
21	CHARLESTON, WV	46	DOVER, DE	$15.39
21	CHARLESTON, WV	47	WASHINGTON, DC	$13.25
21	CHARLESTON, WV	52	TAMPA, FL	$20.63
21	CHARLESTON, WV	55	CHATTANOOGA, TN	$11.53
21	CHARLESTON, WV	58	SAVANNAH, GA	$16.54
21	CHARLESTON, WV	65	PEORIA, IL	$12.68
21	CHARLESTON, WV	66	DANVILLE, IL	$13.50
21	CHARLESTON, WV	67	CHICAGO, IL	$14.42
21	CHARLESTON, WV	72	PADUCAH, KY	$14.80
21	CHARLESTON, WV	76	MUNCIE, IN	$11.83
21	CHARLESTON, WV	77	EVANSVILLE, IN	$13.36
21	CHARLESTON, WV	78	LOUISVILLE, KY	$10.01
21	CHARLESTON, WV	79	CINCINNATI, OH	$8.71
21	CHARLESTON, WV	80	INDIANAPOLIS, IN	$12.19
21	CHARLESTON, WV	81	FT. WAYNE, IN	$12.34
21	CHARLESTON, WV	82	SOUTH BEND, IN	$13.63
21	CHARLESTON, WV	83	BLOOMINGTON, IN	$12.83
21	CHARLESTON, WV	84	TERRA HAUTE, IN	$13.29
21	CHARLESTON, WV	101	HAZARD, KY	$9.84
21	CHARLESTON, WV	102	LEXINGTON, KY	$9.12
21	CHARLESTON, WV	103	HUNTINGTON, WV	$7.40
21	CHARLESTON, WV	104	ELIZABETHTOWN, KY	$9.96
21	CHARLESTON, WV	105	BOWLING GREEN, KY	$11.05
21	CHARLESTON, WV	112	FREDERICK, MD	$13.19
21	CHARLESTON, WV	113	HAGERSTOWN, MD	$12.83
21	CHARLESTON, WV	115	BALTIMORE, MD	$13.99
21	CHARLESTON, WV	116	BRANDYWINE, MD	$13.86
21	CHARLESTON, WV	119	BOSTON, MA	$18.83
21	CHARLESTON, WV	120	PROVIDENCE, RI	$18.17
21	CHARLESTON, WV	122	GRAND RAPIDS, MI	$12.19
21	CHARLESTON, WV	123	DETROIT, MI	$10.81
21	CHARLESTON, WV	124	TOLEDO, OH	$11.98
21	CHARLESTON, WV	125	KALAMAZOO, MI	$11.96
21	CHARLESTON, WV	126	MARQUETTE, MI	$17.38
21	CHARLESTON, WV	136	GREENSBORO, NC	$14.99
21	CHARLESTON, WV	150	ATLANTIC CITY, NJ	$15.98
21	CHARLESTON, WV	151	SCRANTON, PA	$16.56
21	CHARLESTON, WV	158	SYRACUSE, NY	$20.50
21	CHARLESTON, WV	159	BURLINGTON, VT	$13.82
21	CHARLESTON, WV	160	ROCHESTER, NY	$18.13
21	CHARLESTON, WV	161	ALBANY, NY	$14.37
21	CHARLESTON, WV	163	BINGHAMTON, NY	$14.50
21	CHARLESTON, WV	164	OLEAN, NY	$13.84
21	CHARLESTON, WV	165	HICKORY, NC	$13.44
21	CHARLESTON, WV	166	RALEIGH, NC	$11.45
21	CHARLESTON, WV	167	CHARLOTTE, NC	$12.53
21	CHARLESTON, WV	168	ELIZABETH CITY, NC	$10.37
21	CHARLESTON, WV	169	FAYETTEVILLE, NC	$11.83
21	CHARLESTON, WV	170	WILMINGTON, NC	$13.08
21	CHARLESTON, WV	171	ASHEVILLE, NC	$11.00
21	CHARLESTON, WV	173	DAYTON, OH	$8.80
21	CHARLESTON, WV	174	CLEVELAND, OH	$11.83
21	CHARLESTON, WV	175	MANSFIELD, OH	$9.22
21	CHARLESTON, WV	176	COLUMBUS, OH	$8.29
21	CHARLESTON, WV	177	LIMA, OH	$9.60
21	CHARLESTON, WV	178	DUBOIS, PA	$13.50
21	CHARLESTON, WV	179	PARKERSBURG, WV	$8.69
21	CHARLESTON, WV	180	SANDUSKY, OH	$10.01
21	CHARLESTON, WV	181	WHEELING, WV	$10.11
21	CHARLESTON, WV	182	CHILLICOTHE, OH	$7.63
21	CHARLESTON, WV	183	ZANESVILLE, OH	$7.95
21	CHARLESTON, WV	195	ALTOONA, PA	$13.17
21	CHARLESTON, WV	196	HARRISBURG, PA	$13.91
21	CHARLESTON, WV	197	PITTSBURGH, PA	$9.29

Table F5. Transport rates for coal shipments by unit train—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
21	CHARLESTON, WV	198	SUMTER, SC	$13.06
21	CHARLESTON, WV	199	CHARLESTON, SC	$14.10
21	CHARLESTON, WV	200	COLUMBIA, SC	$13.10
21	CHARLESTON, WV	201	FLORENCE, SC	$12.57
21	CHARLESTON, WV	202	SPARTANBURG, SC	$11.79
21	CHARLESTON, WV	203	GREENWOOD, SC	$12.85
21	CHARLESTON, WV	204	GEORGETOWN, SC	$13.74
21	CHARLESTON, WV	207	KNOXVILLE, TN	$12.72
21	CHARLESTON, WV	208	NASHVILLE, TN	$14.25
21	CHARLESTON, WV	222	LYNCHBURG, VA	$11.38
21	CHARLESTON, WV	223	NORFOLK, VA	$14.27
21	CHARLESTON, WV	224	FREDERICKSBURG, VA	$13.14
21	CHARLESTON, WV	225	RICHMOND, VA	$12.91
21	CHARLESTON, WV	226	ROANOKE, VA	$11.38
21	CHARLESTON, WV	231	ELKINS, WV	$9.60
21	CHARLESTON, WV	232	GASSAWAY, WV	$8.03
21	CHARLESTON, WV	233	MARTINSBURG, WV	$11.89
21	CHARLESTON, WV	234	CHARLESTON, WV	$6.64
21	CHARLESTON, WV	235	CLARKSBURG, WV	$9.79
21	CHARLESTON, WV	236	BECKLEY, WV	$8.01
21	CHARLESTON, WV	239	MILWAUKEE, WI	$13.21
21	CHARLESTON, WV	240	MADISON, WI	$13.78
22	CLARKSBURG, WV	2	COLUMBUS, GA	$14.76
22	CLARKSBURG, WV	3	GADSDEN, AL	$11.11
22	CLARKSBURG, WV	4	BIRMINGHAM, AL	$11.66
22	CLARKSBURG, WV	7	DECATUR, AL	$11.13
22	CLARKSBURG, WV	18	MEMPHIS, TN	$14.78
22	CLARKSBURG, WV	41	NORWICH, CT	$10.85
22	CLARKSBURG, WV	42	HARTFORD, CT	$10.43
22	CLARKSBURG, WV	43	NEW YORK, NY	$10.13
22	CLARKSBURG, WV	44	TORRINGTON, CT	$10.41
22	CLARKSBURG, WV	45	PHILADEPHIA, PA	$8.90
22	CLARKSBURG, WV	46	DOVER, DE	$9.12
22	CLARKSBURG, WV	47	WASHINGTON, DC	$8.18
22	CLARKSBURG, WV	53	AUGUSTA, GA	$13.29
22	CLARKSBURG, WV	54	MACON, GA	$14.42
22	CLARKSBURG, WV	55	CHATTANOOGA, TN	$9.71
22	CLARKSBURG, WV	56	ATLANTA, GA	$14.01
22	CLARKSBURG, WV	57	ATHENS, GA	$13.63
22	CLARKSBURG, WV	58	SAVANNAH, GA	$14.39
22	CLARKSBURG, WV	65	PEORIA, IL	$9.24
22	CLARKSBURG, WV	66	DANVILLE, IL	$10.07
22	CLARKSBURG, WV	67	CHICAGO, IL	$10.71
22	CLARKSBURG, WV	70	ST. LOUIS, MO	$12.34
22	CLARKSBURG, WV	71	LASALLE, IL	$11.81
22	CLARKSBURG, WV	72	PADUCAH, KY	$12.47
22	CLARKSBURG, WV	73	ROCKFORD, IL	$11.94
22	CLARKSBURG, WV	74	MARION, IL	$12.23
22	CLARKSBURG, WV	75	SPRINGFIELD, IL	$11.85
22	CLARKSBURG, WV	76	MUNCIE, IN	$8.37
22	CLARKSBURG, WV	77	EVANSVILLE, IN	$10.88
22	CLARKSBURG, WV	78	LOUISVILLE, KY	$7.53
22	CLARKSBURG, WV	79	CINCINNATI, OH	$5.60
22	CLARKSBURG, WV	80	INDIANAPOLIS, IN	$8.78
22	CLARKSBURG, WV	81	FT. WAYNE, IN	$8.48
22	CLARKSBURG, WV	82	SOUTH BEND, IN	$9.77
22	CLARKSBURG, WV	83	BLOOMINGTON, IN	$9.60
22	CLARKSBURG, WV	84	TERRA HAUTE, IN	$9.86
22	CLARKSBURG, WV	101	HAZARD, KY	$8.03
22	CLARKSBURG, WV	102	LEXINGTON, KY	$7.29
22	CLARKSBURG, WV	103	HUNTINGTON, WV	$5.60
22	CLARKSBURG, WV	104	ELIZABETHTOWN, KY	$7.63
22	CLARKSBURG, WV	105	BOWLING GREEN, KY	$8.71
22	CLARKSBURG, WV	107	LEWISTON, ME	$14.52
22	CLARKSBURG, WV	110	PORTLAND, ME	$13.86
22	CLARKSBURG, WV	112	FREDERICK, MD	$6.78
22	CLARKSBURG, WV	113	HAGERSTOWN, MD	$6.23
22	CLARKSBURG, WV	114	SALISBURY, MD	$9.96
22	CLARKSBURG, WV	115	BALTIMORE, MD	$7.63
22	CLARKSBURG, WV	116	BRANDYWINE, MD	$8.54
22	CLARKSBURG, WV	117	PITTSFIELD, MA	$10.49
22	CLARKSBURG, WV	118	WORCESTER, MA	$11.62
22	CLARKSBURG, WV	119	BOSTON, MA	$12.23
22	CLARKSBURG, WV	120	PROVIDENCE, RI	$11.58
22	CLARKSBURG, WV	121	MANCHESTER, NH	$12.66
22	CLARKSBURG, WV	122	GRAND RAPIDS, MI	$8.18
22	CLARKSBURG, WV	123	DETROIT, MI	$6.74
22	CLARKSBURG, WV	124	TOLEDO, OH	$7.91
22	CLARKSBURG, WV	125	KALAMAZOO, MI	$8.10
22	CLARKSBURG, WV	126	MARQUETTE, MI	$13.31
22	CLARKSBURG, WV	134	GREENVILLE, MS	$14.35
22	CLARKSBURG, WV	135	TUPELO, MS	$12.70
22	CLARKSBURG, WV	136	GREENSBORO, NC	$11.85
22	CLARKSBURG, WV	149	PLYMOUTH, NH	$8.31
22	CLARKSBURG, WV	150	ATLANTIC CITY, NJ	$9.37
22	CLARKSBURG, WV	151	SCRANTON, PA	$10.71
22	CLARKSBURG, WV	158	SYRACUSE, NY	$13.91
22	CLARKSBURG, WV	159	BURLINGTON, VT	$8.14
22	CLARKSBURG, WV	160	ROCHESTER, NY	$11.53
22	CLARKSBURG, WV	161	ALBANY, NY	$8.95
22	CLARKSBURG, WV	162	BUFFALO, NY	$9.96
22	CLARKSBURG, WV	163	BINGHAMTON, NY	$8.16
22	CLARKSBURG, WV	164	OLEAN, NY	$11.85

Table F5. Transport rates for coal shipments by unit train—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
22	CLARKSBURG, WV	165	HICKORY, NC	$10.66
22	CLARKSBURG, WV	166	RALEIGH, NC	$9.31
22	CLARKSBURG, WV	167	CHARLOTTE, NC	$9.26
22	CLARKSBURG, WV	168	ELIZABETH CITY, NC	$7.89
22	CLARKSBURG, WV	169	FAYETTEVILLE, NC	$9.09
22	CLARKSBURG, WV	170	WILMINGTON, NC	$10.30
22	CLARKSBURG, WV	171	ASHEVILLE, NC	$9.50
22	CLARKSBURG, WV	173	DAYTON, OH	$5.38
22	CLARKSBURG, WV	174	CLEVELAND, OH	$6.83
22	CLARKSBURG, WV	175	MANSFIELD, OH	$5.13
22	CLARKSBURG, WV	176	COLUMBUS, OH	$4.43
22	CLARKSBURG, WV	177	LIMA, OH	$5.75
22	CLARKSBURG, WV	178	DUBOIS, PA	$6.70
22	CLARKSBURG, WV	179	PARKERSBURG, WV	$3.77
22	CLARKSBURG, WV	180	SANDUSKY, OH	$5.55
22	CLARKSBURG, WV	181	WHEELING, WV	$4.03
22	CLARKSBURG, WV	182	CHILLICOTHE, OH	$4.22
22	CLARKSBURG, WV	183	ZANESVILLE, OH	$4.05
22	CLARKSBURG, WV	195	ALTOONA, PA	$6.51
22	CLARKSBURG, WV	196	HARRISBURG, PA	$7.31
22	CLARKSBURG, WV	197	PITTSBURGH, PA	$3.03
22	CLARKSBURG, WV	198	SUMTER, SC	$10.85
22	CLARKSBURG, WV	199	CHARLESTON, SC	$11.87
22	CLARKSBURG, WV	200	COLUMBIA, SC	$10.98
22	CLARKSBURG, WV	201	FLORENCE, SC	$10.37
22	CLARKSBURG, WV	202	SPARTANBURG, SC	$10.28
22	CLARKSBURG, WV	203	GREENWOOD, SC	$11.19
22	CLARKSBURG, WV	204	GEORGETOWN, SC	$11.24
22	CLARKSBURG, WV	207	KNOXVILLE, TN	$11.07
22	CLARKSBURG, WV	208	NASHVILLE, TN	$11.91
22	CLARKSBURG, WV	209	JACKSON, TN	$13.67
22	CLARKSBURG, WV	221	MONTPELIER, VT	$12.95
22	CLARKSBURG, WV	222	LYNCHBURG, VA	$8.50
22	CLARKSBURG, WV	223	NORFOLK, VA	$10.98
22	CLARKSBURG, WV	224	FREDERICKSBURG, VA	$8.84
22	CLARKSBURG, WV	225	RICHMOND, VA	$9.65
22	CLARKSBURG, WV	226	ROANOKE, VA	$8.50
22	CLARKSBURG, WV	231	ELKINS, WV	$3.60
22	CLARKSBURG, WV	232	GASSAWAY, WV	$4.30
22	CLARKSBURG, WV	233	MARTINSBURG, WV	$5.36
22	CLARKSBURG, WV	234	CHARLESTON, WV	$5.70
22	CLARKSBURG, WV	235	CLARKSBURG, WV	$2.54
22	CLARKSBURG, WV	236	BECKLEY, WV	$6.95
22	CLARKSBURG, WV	237	GREEN BAY, WI	$12.36
22	CLARKSBURG, WV	238	WAUSAU, WI	$12.72
22	CLARKSBURG, WV	239	MILWAUKEE, WI	$9.50
22	CLARKSBURG, WV	240	MADISON, WI	$10.09
23	PHILIPPI, WV	41	NORWICH, CT	$14.25
23	PHILIPPI, WV	42	HARTFORD, CT	$13.84
23	PHILIPPI, WV	43	NEW YORK, NY	$13.55
23	PHILIPPI, WV	44	TORRINGTON, CT	$13.80
23	PHILIPPI, WV	45	PHILADEPHIA, PA	$12.30
23	PHILIPPI, WV	46	DOVER, DE	$12.51
23	PHILIPPI, WV	47	WASHINGTON, DC	$11.60
23	PHILIPPI, WV	55	CHATTANOOGA, TN	$13.55
23	PHILIPPI, WV	65	PEORIA, IL	$13.27
23	PHILIPPI, WV	66	DANVILLE, IL	$14.12
23	PHILIPPI, WV	67	CHICAGO, IL	$14.76
23	PHILIPPI, WV	76	MUNCIE, IN	$12.40
23	PHILIPPI, WV	78	LOUISVILLE, KY	$11.55
23	PHILIPPI, WV	79	CINCINNATI, OH	$9.65
23	PHILIPPI, WV	80	INDIANAPOLIS, IN	$12.80
23	PHILIPPI, WV	81	FT. WAYNE, IN	$12.51
23	PHILIPPI, WV	82	SOUTH BEND, IN	$13.80
23	PHILIPPI, WV	83	BLOOMINGTON, IN	$13.65
23	PHILIPPI, WV	84	TERRA HAUTE, IN	$13.91
23	PHILIPPI, WV	101	HAZARD, KY	$11.87
23	PHILIPPI, WV	102	LEXINGTON, KY	$11.15
23	PHILIPPI, WV	103	HUNTINGTON, WV	$9.41
23	PHILIPPI, WV	104	ELIZABETHTOWN, KY	$11.66
23	PHILIPPI, WV	105	BOWLING GREEN, KY	$12.76
23	PHILIPPI, WV	112	FREDERICK, MD	$10.18
23	PHILIPPI, WV	113	HAGERSTOWN, MD	$9.62
23	PHILIPPI, WV	114	SALISBURY, MD	$13.36
23	PHILIPPI, WV	115	BALTIMORE, MD	$11.02
23	PHILIPPI, WV	116	BRANDYWINE, MD	$11.94
23	PHILIPPI, WV	117	PITTSFIELD, MA	$13.91
23	PHILIPPI, WV	119	BOSTON, MA	$15.62
23	PHILIPPI, WV	120	PROVIDENCE, RI	$14.97
23	PHILIPPI, WV	122	GRAND RAPIDS, MI	$11.96
23	PHILIPPI, WV	123	DETROIT, MI	$10.54
23	PHILIPPI, WV	124	TOLEDO, OH	$11.70
23	PHILIPPI, WV	125	KALAMAZOO, MI	$12.08
23	PHILIPPI, WV	149	PLYMOUTH, NH	$11.70
23	PHILIPPI, WV	150	ATLANTIC CITY, NJ	$12.78
23	PHILIPPI, WV	151	SCRANTON, PA	$14.18
23	PHILIPPI, WV	159	BURLINGTON, VT	$11.72
23	PHILIPPI, WV	161	ALBANY, NY	$12.55
23	PHILIPPI, WV	162	BUFFALO, NY	$13.42
23	PHILIPPI, WV	163	BINGHAMTON, NY	$11.74
23	PHILIPPI, WV	164	OLEAN, NY	$14.82
23	PHILIPPI, WV	165	HICKORY, NC	$13.63
23	PHILIPPI, WV	166	RALEIGH, NC	$12.27

Table F5. Transport rates for coal shipments by unit train—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
23	PHILIPPI, WV	167	CHARLOTTE, NC	$12.61
23	PHILIPPI, WV	168	ELIZABETH CITY, NC	$10.85
23	PHILIPPI, WV	169	FAYETTEVILLE, NC	$12.06
23	PHILIPPI, WV	170	WILMINGTON, NC	$13.27
23	PHILIPPI, WV	171	ASHEVILLE, NC	$13.02
23	PHILIPPI, WV	173	DAYTON, OH	$9.41
23	PHILIPPI, WV	174	CLEVELAND, OH	$10.60
23	PHILIPPI, WV	175	MANSFIELD, OH	$8.93
23	PHILIPPI, WV	176	COLUMBUS, OH	$8.46
23	PHILIPPI, WV	177	LIMA, OH	$9.77
23	PHILIPPI, WV	178	DUBOIS, PA	$10.30
23	PHILIPPI, WV	179	PARKERSBURG, WV	$7.80
23	PHILIPPI, WV	180	SANDUSKY, OH	$9.33
23	PHILIPPI, WV	181	WHEELING, WV	$7.80
23	PHILIPPI, WV	182	CHILLICOTHE, OH	$8.25
23	PHILIPPI, WV	183	ZANESVILLE, OH	$7.89
23	PHILIPPI, WV	195	ALTOONA, PA	$9.96
23	PHILIPPI, WV	196	HARRISBURG, PA	$10.71
23	PHILIPPI, WV	197	PITTSBURGH, PA	$6.64
23	PHILIPPI, WV	198	SUMTER, SC	$13.82
23	PHILIPPI, WV	200	COLUMBIA, SC	$13.93
23	PHILIPPI, WV	201	FLORENCE, SC	$13.33
23	PHILIPPI, WV	202	SPARTANBURG, SC	$13.44
23	PHILIPPI, WV	203	GREENWOOD, SC	$14.14
23	PHILIPPI, WV	204	GEORGETOWN, SC	$14.20
23	PHILIPPI, WV	207	KNOXVILLE, TN	$14.76
23	PHILIPPI, WV	222	LYNCHBURG, VA	$11.47
23	PHILIPPI, WV	223	NORFOLK, VA	$14.33
23	PHILIPPI, WV	224	FREDERICKSBURG, VA	$12.23
23	PHILIPPI, WV	225	RICHMOND, VA	$13.00
23	PHILIPPI, WV	226	ROANOKE, VA	$11.47
23	PHILIPPI, WV	231	ELKINS, WV	$6.57
23	PHILIPPI, WV	232	GASSAWAY, WV	$7.27
23	PHILIPPI, WV	233	MARTINSBURG, WV	$8.76
23	PHILIPPI, WV	234	CHARLESTON, WV	$8.65
23	PHILIPPI, WV	235	CLARKSBURG, WV	$6.59
23	PHILIPPI, WV	236	BECKLEY, WV	$9.92
23	PHILIPPI, WV	239	MILWAUKEE, WI	$13.55
23	PHILIPPI, WV	240	MADISON, WI	$14.12
26	PEORIA, IL	65	PEORIA, IL	$2.12
26	PEORIA, IL	66	DANVILLE, IL	$2.12
26	PEORIA, IL	67	CHICAGO, IL	$2.12
26	PEORIA, IL	70	ST. LOUIS, MO	$2.12
26	PEORIA, IL	71	LASALLE, IL	$2.12
26	PEORIA, IL	72	PADUCAH, KY	$3.24
26	PEORIA, IL	73	ROCKFORD, IL	$2.12
26	PEORIA, IL	74	MARION, IL	$1.89
26	PEORIA, IL	75	SPRINGFIELD, IL	$2.12
26	PEORIA, IL	76	MUNCIE, IN	$2.18
26	PEORIA, IL	77	EVANSVILLE, IN	$2.46
26	PEORIA, IL	78	LOUISVILLE, KY	$5.55
26	PEORIA, IL	79	CINCINNATI, OH	$5.81
26	PEORIA, IL	80	INDIANAPOLIS, IN	$1.29
26	PEORIA, IL	81	FT. WAYNE, IN	$2.42
26	PEORIA, IL	82	SOUTH BEND, IN	$1.29
26	PEORIA, IL	83	BLOOMINGTON, IN	$2.01
26	PEORIA, IL	84	TERRA HAUTE, IN	$0.42
26	PEORIA, IL	106	NEW ORLEANS, LA	$18.83
26	PEORIA, IL	122	GRAND RAPIDS, MI	$5.85
26	PEORIA, IL	124	TOLEDO, OH	$4.79
26	PEORIA, IL	125	KALAMAZOO, MI	$4.37
26	PEORIA, IL	136	GREENSBORO, NC	$5.00
26	PEORIA, IL	173	DAYTON, OH	$5.66
26	PEORIA, IL	177	LIMA, OH	$5.41
26	PEORIA, IL	209	JACKSON, TN	$5.77
26	PEORIA, IL	237	GREEN BAY, WI	$4.83
26	PEORIA, IL	239	MILWAUKEE, WI	$3.77
26	PEORIA, IL	240	MADISON, WI	$3.39
27	OTTAWA, IL	66	DANVILLE, IL	$4.75
27	OTTAWA, IL	67	CHICAGO, IL	$3.33
27	OTTAWA, IL	71	LASALLE, IL	$1.67
27	OTTAWA, IL	73	ROCKFORD, IL	$3.43
27	OTTAWA, IL	75	SPRINGFIELD, IL	$10.35
27	OTTAWA, IL	82	SOUTH BEND, IN	$4.92
27	OTTAWA, IL	84	TERRA HAUTE, IN	$6.13
27	OTTAWA, IL	106	NEW ORLEANS, LA	$24.89
28	TAYLORVILLE, IL	65	PEORIA, IL	$4.66
28	TAYLORVILLE, IL	66	DANVILLE, IL	$2.52
28	TAYLORVILLE, IL	67	CHICAGO, IL	$4.88
28	TAYLORVILLE, IL	70	ST. LOUIS, MO	$1.91
28	TAYLORVILLE, IL	71	LASALLE, IL	$3.29
28	TAYLORVILLE, IL	72	PADUCAH, KY	$4.85
28	TAYLORVILLE, IL	73	ROCKFORD, IL	$5.05
28	TAYLORVILLE, IL	74	MARION, IL	$3.50
28	TAYLORVILLE, IL	75	SPRINGFIELD, IL	$2.20
28	TAYLORVILLE, IL	76	MUNCIE, IN	$5.70
28	TAYLORVILLE, IL	77	EVANSVILLE, IN	$4.18
28	TAYLORVILLE, IL	80	INDIANAPOLIS, IN	$4.62
28	TAYLORVILLE, IL	82	SOUTH BEND, IN	$6.02
28	TAYLORVILLE, IL	83	BLOOMINGTON, IN	$4.60
28	TAYLORVILLE, IL	84	TERRA HAUTE, IN	$2.82
28	TAYLORVILLE, IL	106	NEW ORLEANS, LA	$20.42
29	MT. VERNON, IL	3	GADSDEN, AL	$10.09

Table F5. Transport rates for coal shipments by unit train—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
29	MT. VERNON, IL	4	BIRMINGHAM, AL	$9.71
29	MT. VERNON, IL	7	DECATUR, AL	$7.93
29	MT. VERNON, IL	18	MEMPHIS, TN	$2.97
29	MT. VERNON, IL	19	MONROE, LA	$48.55
29	MT. VERNON, IL	20	JONESBORO, AR	$12.19
29	MT. VERNON, IL	50	W. PALM BEACH, FL	$25.40
29	MT. VERNON, IL	51	FT. MEYER, FL	$24.25
29	MT. VERNON, IL	52	TAMPA, FL	$22.79
29	MT. VERNON, IL	55	CHATTANOOGA, TN	$8.90
29	MT. VERNON, IL	56	ATLANTA, GA	$9.79
29	MT. VERNON, IL	65	PEORIA, IL	$3.60
29	MT. VERNON, IL	66	DANVILLE, IL	$3.43
29	MT. VERNON, IL	67	CHICAGO, IL	$3.18
29	MT. VERNON, IL	69	DAVENPORT, IA	$3.71
29	MT. VERNON, IL	70	ST. LOUIS, MO	$2.12
29	MT. VERNON, IL	71	LASALLE, IL	$3.67
29	MT. VERNON, IL	72	PADUCAH, KY	$2.12
29	MT. VERNON, IL	73	ROCKFORD, IL	$3.71
29	MT. VERNON, IL	74	MARION, IL	$2.12
29	MT. VERNON, IL	75	SPRINGFIELD, IL	$3.92
29	MT. VERNON, IL	76	MUNCIE, IN	$3.14
29	MT. VERNON, IL	77	EVANSVILLE, IN	$2.12
29	MT. VERNON, IL	78	LOUISVILLE, KY	$2.63
29	MT. VERNON, IL	79	CINCINNATI, OH	$5.19
29	MT. VERNON, IL	80	INDIANAPOLIS, IN	$3.56
29	MT. VERNON, IL	81	FT. WAYNE, IN	$4.49
29	MT. VERNON, IL	82	SOUTH BEND, IN	$4.30
29	MT. VERNON, IL	83	BLOOMINGTON, IN	$3.43
29	MT. VERNON, IL	84	TERRA HAUTE, IN	$2.12
29	MT. VERNON, IL	101	HAZARD, KY	$8.93
29	MT. VERNON, IL	102	LEXINGTON, KY	$4.37
29	MT. VERNON, IL	103	HUNTINGTON, WV	$7.53
29	MT. VERNON, IL	104	ELIZABETHTOWN, KY	$4.13
29	MT. VERNON, IL	105	BOWLING GREEN, KY	$4.16
29	MT. VERNON, IL	106	NEW ORLEANS, LA	$14.56
29	MT. VERNON, IL	122	GRAND RAPIDS, MI	$9.03
29	MT. VERNON, IL	123	DETROIT, MI	$10.05
29	MT. VERNON, IL	124	TOLEDO, OH	$6.89
29	MT. VERNON, IL	125	KALAMAZOO, MI	$7.57
29	MT. VERNON, IL	128	LA CROSSE, WI	$48.59
29	MT. VERNON, IL	134	GREENVILLE, MS	$9.09
29	MT. VERNON, IL	135	TUPELO, MS	$6.68
29	MT. VERNON, IL	136	GREENSBORO, NC	$3.65
29	MT. VERNON, IL	173	DAYTON, OH	$6.13
29	MT. VERNON, IL	174	CLEVELAND, OH	$8.88
29	MT. VERNON, IL	175	MANSFIELD, OH	$8.97
29	MT. VERNON, IL	176	COLUMBUS, OH	$7.78
29	MT. VERNON, IL	177	LIMA, OH	$7.02
29	MT. VERNON, IL	179	PARKERSBURG, WV	$9.05
29	MT. VERNON, IL	180	SANDUSKY, OH	$9.22
29	MT. VERNON, IL	181	WHEELING, WV	$10.37
29	MT. VERNON, IL	182	CHILLICOTHE, OH	$7.50
29	MT. VERNON, IL	183	ZANESVILLE, OH	$9.24
29	MT. VERNON, IL	207	KNOXVILLE, TN	$7.97
29	MT. VERNON, IL	208	NASHVILLE, TN	$2.61
29	MT. VERNON, IL	209	JACKSON, TN	$2.46
29	MT. VERNON, IL	234	CHARLESTON, WV	$8.80
29	MT. VERNON, IL	237	GREEN BAY, WI	$8.82
29	MT. VERNON, IL	239	MILWAUKEE, WI	$5.77
29	MT. VERNON, IL	240	MADISON, WI	$7.87
30	TUSCOLA, IL	66	DANVILLE, IL	$2.93
30	TUSCOLA, IL	67	CHICAGO, IL	$5.41
30	TUSCOLA, IL	70	ST. LOUIS, MO	$4.90
30	TUSCOLA, IL	71	LASALLE, IL	$4.96
30	TUSCOLA, IL	74	MARION, IL	$5.62
30	TUSCOLA, IL	75	SPRINGFIELD, IL	$4.35
30	TUSCOLA, IL	76	MUNCIE, IN	$5.96
30	TUSCOLA, IL	77	EVANSVILLE, IN	$5.49
30	TUSCOLA, IL	80	INDIANAPOLIS, IN	$4.71
30	TUSCOLA, IL	82	SOUTH BEND, IN	$6.53
30	TUSCOLA, IL	83	BLOOMINGTON, IN	$5.00
30	TUSCOLA, IL	84	TERRA HAUTE, IN	$3.24
30	TUSCOLA, IL	128	LA CROSSE, WI	$52.32
30	TUSCOLA, IL	239	MILWAUKEE, WI	$7.55
30	TUSCOLA, IL	240	MADISON, WI	$10.88
31	HARRISBURG, IL	3	GADSDEN, AL	$9.37
31	HARRISBURG, IL	4	BIRMINGHAM, AL	$8.84
31	HARRISBURG, IL	5	MOBILE, AL	$12.85
31	HARRISBURG, IL	7	DECATUR, AL	$7.06
31	HARRISBURG, IL	18	MEMPHIS, TN	$4.66
31	HARRISBURG, IL	55	CHATTANOOGA, TN	$8.18
31	HARRISBURG, IL	56	ATLANTA, GA	$9.07
31	HARRISBURG, IL	65	PEORIA, IL	$4.85
31	HARRISBURG, IL	66	DANVILLE, IL	$4.03
31	HARRISBURG, IL	67	CHICAGO, IL	$4.05
31	HARRISBURG, IL	70	ST. LOUIS, MO	$2.69
31	HARRISBURG, IL	71	LASALLE, IL	$3.20
31	HARRISBURG, IL	72	PADUCAH, KY	$2.12
31	HARRISBURG, IL	73	ROCKFORD, IL	$4.96
31	HARRISBURG, IL	74	MARION, IL	$2.12
31	HARRISBURG, IL	75	SPRINGFIELD, IL	$2.40
31	HARRISBURG, IL	76	MUNCIE, IN	$3.03
31	HARRISBURG, IL	77	EVANSVILLE, IN	$2.12

Table F5. Transport rates for coal shipments by unit train—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
31	HARRISBURG, IL	78	LOUISVILLE, KY	$2.52
31	HARRISBURG, IL	79	CINCINNATI, OH	$5.09
31	HARRISBURG, IL	80	INDIANAPOLIS, IN	$4.45
31	HARRISBURG, IL	81	FT. WAYNE, IN	$4.71
31	HARRISBURG, IL	82	SOUTH BEND, IN	$4.71
31	HARRISBURG, IL	83	BLOOMINGTON, IN	$3.43
31	HARRISBURG, IL	84	TERRA HAUTE, IN	$3.10
31	HARRISBURG, IL	101	HAZARD, KY	$8.82
31	HARRISBURG, IL	102	LEXINGTON, KY	$4.28
31	HARRISBURG, IL	103	HUNTINGTON, WV	$7.44
31	HARRISBURG, IL	104	ELIZABETHTOWN, KY	$3.65
31	HARRISBURG, IL	105	BOWLING GREEN, KY	$3.69
31	HARRISBURG, IL	122	GRAND RAPIDS, MI	$9.71
31	HARRISBURG, IL	123	DETROIT, MI	$10.11
31	HARRISBURG, IL	124	TOLEDO, OH	$6.95
31	HARRISBURG, IL	125	KALAMAZOO, MI	$7.97
31	HARRISBURG, IL	128	LA CROSSE, WI	$13.99
31	HARRISBURG, IL	134	GREENVILLE, MS	$8.20
31	HARRISBURG, IL	135	TUPELO, MS	$5.81
31	HARRISBURG, IL	136	GREENSBORO, NC	$4.88
31	HARRISBURG, IL	173	DAYTON, OH	$6.02
31	HARRISBURG, IL	174	CLEVELAND, OH	$8.80
31	HARRISBURG, IL	175	MANSFIELD, OH	$8.88
31	HARRISBURG, IL	176	COLUMBUS, OH	$7.70
31	HARRISBURG, IL	177	LIMA, OH	$6.91
31	HARRISBURG, IL	179	PARKERSBURG, WV	$8.95
31	HARRISBURG, IL	180	SANDUSKY, OH	$9.14
31	HARRISBURG, IL	181	WHEELING, WV	$10.26
31	HARRISBURG, IL	182	CHILLICOTHE, OH	$7.42
31	HARRISBURG, IL	183	ZANESVILLE, OH	$9.16
31	HARRISBURG, IL	207	KNOXVILLE, TN	$7.36
31	HARRISBURG, IL	208	NASHVILLE, TN	$4.62
31	HARRISBURG, IL	209	JACKSON, TN	$3.58
31	HARRISBURG, IL	234	CHARLESTON, WV	$8.69
31	HARRISBURG, IL	237	GREEN BAY, WI	$9.69
31	HARRISBURG, IL	238	WAUSAU, WI	$12.17
31	HARRISBURG, IL	239	MILWAUKEE, WI	$8.16
31	HARRISBURG, IL	240	MADISON, WI	$9.12
32	SULLIVAN, IN	18	MEMPHIS, TN	$10.52
32	SULLIVAN, IN	65	PEORIA, IL	$9.16
32	SULLIVAN, IN	66	DANVILLE, IL	$3.84
32	SULLIVAN, IN	67	CHICAGO, IL	$6.87
32	SULLIVAN, IN	70	ST. LOUIS, MO	$5.85
32	SULLIVAN, IN	71	LASALLE, IL	$7.29
32	SULLIVAN, IN	72	PADUCAH, KY	$6.55
32	SULLIVAN, IN	73	ROCKFORD, IL	$8.65
32	SULLIVAN, IN	74	MARION, IL	$5.85
32	SULLIVAN, IN	75	SPRINGFIELD, IL	$6.68
32	SULLIVAN, IN	76	MUNCIE, IN	$5.62
32	SULLIVAN, IN	77	EVANSVILLE, IN	$3.88
32	SULLIVAN, IN	78	LOUISVILLE, KY	$6.78
32	SULLIVAN, IN	79	CINCINNATI, OH	$8.29
32	SULLIVAN, IN	80	INDIANAPOLIS, IN	$4.26
32	SULLIVAN, IN	81	FT. WAYNE, IN	$7.08
32	SULLIVAN, IN	82	SOUTH BEND, IN	$7.08
32	SULLIVAN, IN	83	BLOOMINGTON, IN	$3.18
32	SULLIVAN, IN	84	TERRA HAUTE, IN	$2.44
32	SULLIVAN, IN	102	LEXINGTON, KY	$8.52
32	SULLIVAN, IN	104	ELIZABETHTOWN, KY	$8.33
32	SULLIVAN, IN	105	BOWLING GREEN, KY	$9.37
32	SULLIVAN, IN	122	GRAND RAPIDS, MI	$12.08
32	SULLIVAN, IN	124	TOLEDO, OH	$9.48
32	SULLIVAN, IN	125	KALAMAZOO, MI	$10.35
32	SULLIVAN, IN	131	MINNEAPOLIS, MN	$16.98
32	SULLIVAN, IN	173	DAYTON, OH	$8.61
32	SULLIVAN, IN	176	COLUMBUS, OH	$10.28
32	SULLIVAN, IN	177	LIMA, OH	$9.50
32	SULLIVAN, IN	182	CHILLICOTHE, OH	$10.56
32	SULLIVAN, IN	208	NASHVILLE, TN	$7.82
32	SULLIVAN, IN	209	JACKSON, TN	$9.07
32	SULLIVAN, IN	237	GREEN BAY, WI	$12.49
32	SULLIVAN, IN	238	WAUSAU, WI	$14.97
32	SULLIVAN, IN	240	MADISON, WI	$12.64
33	MORGANFIELD, KY	3	GADSDEN, AL	$10.24
33	MORGANFIELD, KY	5	MOBILE, AL	$16.24
33	MORGANFIELD, KY	7	DECATUR, AL	$8.25
33	MORGANFIELD, KY	18	MEMPHIS, TN	$5.47
33	MORGANFIELD, KY	55	CHATTANOOGA, TN	$9.05
33	MORGANFIELD, KY	56	ATLANTA, GA	$9.94
33	MORGANFIELD, KY	65	PEORIA, IL	$8.16
33	MORGANFIELD, KY	66	DANVILLE, IL	$3.46
33	MORGANFIELD, KY	67	CHICAGO, IL	$6.49
33	MORGANFIELD, KY	70	ST. LOUIS, MO	$3.48
33	MORGANFIELD, KY	71	LASALLE, IL	$6.34
33	MORGANFIELD, KY	72	PADUCAH, KY	$1.29
33	MORGANFIELD, KY	73	ROCKFORD, IL	$8.10
33	MORGANFIELD, KY	74	MARION, IL	$2.31
33	MORGANFIELD, KY	75	SPRINGFIELD, IL	$5.70
33	MORGANFIELD, KY	76	MUNCIE, IN	$5.05
33	MORGANFIELD, KY	77	EVANSVILLE, IN	$2.12
33	MORGANFIELD, KY	78	LOUISVILLE, KY	$3.90
33	MORGANFIELD, KY	79	CINCINNATI, OH	$6.89
33	MORGANFIELD, KY	80	INDIANAPOLIS, IN	$3.69
33	MORGANFIELD, KY	81	FT. WAYNE, IN	$6.81

Table F5. Transport rates for coal shipments by unit train—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
33	MORGANFIELD, KY	82	SOUTH BEND, IN	$6.81
33	MORGANFIELD, KY	83	BLOOMINGTON, IN	$2.48
33	MORGANFIELD, KY	84	TERRA HAUTE, IN	$2.16
33	MORGANFIELD, KY	101	HAZARD, KY	$10.20
33	MORGANFIELD, KY	102	LEXINGTON, KY	$5.66
33	MORGANFIELD, KY	103	HUNTINGTON, WV	$8.82
33	MORGANFIELD, KY	104	ELIZABETHTOWN, KY	$4.26
33	MORGANFIELD, KY	105	BOWLING GREEN, KY	$4.30
33	MORGANFIELD, KY	124	TOLEDO, OH	$8.95
33	MORGANFIELD, KY	125	KALAMAZOO, MI	$10.07
33	MORGANFIELD, KY	135	TUPELO, MS	$9.20
33	MORGANFIELD, KY	136	GREENSBORO, NC	$8.78
33	MORGANFIELD, KY	173	DAYTON, OH	$8.03
33	MORGANFIELD, KY	176	COLUMBUS, OH	$9.65
33	MORGANFIELD, KY	177	LIMA, OH	$8.93
33	MORGANFIELD, KY	182	CHILLICOTHE, OH	$9.22
33	MORGANFIELD, KY	207	KNOXVILLE, TN	$8.23
33	MORGANFIELD, KY	208	NASHVILLE, TN	$2.76
33	MORGANFIELD, KY	209	JACKSON, TN	$4.03
33	MORGANFIELD, KY	234	CHARLESTON, WV	$10.07
34	MADISONVILLE, KY	3	GADSDEN, AL	$8.08
34	MADISONVILLE, KY	4	BIRMINGHAM, AL	$8.48
34	MADISONVILLE, KY	5	MOBILE, AL	$14.69
34	MADISONVILLE, KY	7	DECATUR, AL	$6.08
34	MADISONVILLE, KY	18	MEMPHIS, TN	$3.92
34	MADISONVILLE, KY	52	TAMPA, FL	$21.56
34	MADISONVILLE, KY	55	CHATTANOOGA, TN	$6.89
34	MADISONVILLE, KY	56	ATLANTA, GA	$7.78
34	MADISONVILLE, KY	65	PEORIA, IL	$7.89
34	MADISONVILLE, KY	66	DANVILLE, IL	$3.16
34	MADISONVILLE, KY	67	CHICAGO, IL	$6.19
34	MADISONVILLE, KY	70	ST. LOUIS, MO	$3.18
34	MADISONVILLE, KY	71	LASALLE, IL	$6.04
34	MADISONVILLE, KY	72	PADUCAH, KY	$2.12
34	MADISONVILLE, KY	73	ROCKFORD, IL	$7.80
34	MADISONVILLE, KY	74	MARION, IL	$1.23
34	MADISONVILLE, KY	75	SPRINGFIELD, IL	$5.41
34	MADISONVILLE, KY	76	MUNCIE, IN	$4.75
34	MADISONVILLE, KY	77	EVANSVILLE, IN	$2.12
34	MADISONVILLE, KY	78	LOUISVILLE, KY	$3.12
34	MADISONVILLE, KY	79	CINCINNATI, OH	$6.11
34	MADISONVILLE, KY	80	INDIANAPOLIS, IN	$3.39
34	MADISONVILLE, KY	81	FT. WAYNE, IN	$6.53
34	MADISONVILLE, KY	82	SOUTH BEND, IN	$6.53
34	MADISONVILLE, KY	83	BLOOMINGTON, IN	$2.18
34	MADISONVILLE, KY	84	TERRA HAUTE, IN	$3.39
34	MADISONVILLE, KY	101	HAZARD, KY	$9.16
34	MADISONVILLE, KY	102	LEXINGTON, KY	$4.60
34	MADISONVILLE, KY	103	HUNTINGTON, WV	$7.76
34	MADISONVILLE, KY	104	ELIZABETHTOWN, KY	$2.54
34	MADISONVILLE, KY	105	BOWLING GREEN, KY	$2.06
34	MADISONVILLE, KY	122	GRAND RAPIDS, MI	$11.51
34	MADISONVILLE, KY	124	TOLEDO, OH	$8.67
34	MADISONVILLE, KY	135	TUPELO, MS	$7.65
34	MADISONVILLE, KY	136	GREENSBORO, NC	$8.48
34	MADISONVILLE, KY	173	DAYTON, OH	$7.34
34	MADISONVILLE, KY	176	COLUMBUS, OH	$8.86
34	MADISONVILLE, KY	177	LIMA, OH	$8.63
34	MADISONVILLE, KY	182	CHILLICOTHE, OH	$8.42
34	MADISONVILLE, KY	207	KNOXVILLE, TN	$6.06
34	MADISONVILLE, KY	208	NASHVILLE, TN	$2.54
34	MADISONVILLE, KY	209	JACKSON, TN	$2.48
34	MADISONVILLE, KY	234	CHARLESTON, WV	$9.03
34	MADISONVILLE, KY	237	GREEN BAY, WI	$11.83
34	MADISONVILLE, KY	238	WAUSAU, WI	$14.31
34	MADISONVILLE, KY	239	MILWAUKEE, WI	$10.30
34	MADISONVILLE, KY	240	MADISON, WI	$11.96
37	MARSHALL, TX	16	LITTLE ROCK, AR	$4.54
37	MARSHALL, TX	17	FT SMITH, AR	$5.49
37	MARSHALL, TX	19	MONROE, LA	$2.95
37	MARSHALL, TX	20	JONESBORO, AR	$7.36
37	MARSHALL, TX	21	CLARKSVILLE, AR	$6.64
37	MARSHALL, TX	22	SHREVEPORT, LA	$2.12
37	MARSHALL, TX	184	OKLAHOMA CITY, OK	$7.00
37	MARSHALL, TX	186	TULSA, OK	$7.80
37	MARSHALL, TX	188	MCALESTER, OK	$5.64
37	MARSHALL, TX	189	LAWTON, OK	$6.89
37	MARSHALL, TX	210	WICHITA, FALLS, TX	$6.23
37	MARSHALL, TX	212	AUSTIN, TX	$6.00
37	MARSHALL, TX	215	DALLAS, TX	$3.20
37	MARSHALL, TX	216	HOUSTON, TX	$5.38
38	MT. PLEASANT, TX	16	LITTLE ROCK, AR	$4.41
38	MT. PLEASANT, TX	17	FT. SMITH, AR	$4.66
38	MT. PLEASANT, TX	19	MONROE, LA	$4.37
38	MT. PLEASANT, TX	20	JONESBORO, AR	$7.23
38	MT. PLEASANT, TX	21	CLARKSVILLE, AR	$5.98
38	MT. PLEASANT, TX	22	SHREVEPORT, LA	$1.02
38	MT. PLEASANT, TX	106	NEW ORLEANS, LA	$8.76
38	MT. PLEASANT, TX	184	OKLAHOMA CITY, OK	$5.81
38	MT. PLEASANT, TX	185	ENID, OK	$7.65
38	MT PLEASANT, TX	186	TULSA, OK	$6.61
38	MT. PLEASANT, TX	188	MCALESTER, OK	$4.30
38	MT. PLEASANT, TX	189	LAWTON, OK	$5.70

Table F5. Transport rates for coal shipments by unit train—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
38	MT. PLEASANT, TX	210	WICHITA, FALLS, TX	$5.05
38	MT. PLEASANT, TX	211	AMARILLO, TX	$9.75
38	MT. PLEASANT, TX	212	AUSTIN, TX	$6.42
38	MT. PLEASANT, TX	213	LAREDO, TX	$11.38
38	MT. PLEASANT, TX	214	CORPUS CHRISTI, TX	$10.24
38	MT. PLEASANT, TX	215	DALLAS, TX	$1.23
38	MT. PLEASANT, TX	216	HOUSTON, TX	$5.83
38	MT. PLEASANT, TX	217	SAN ANTONIO, TX	$8.12
38	MT. PLEASANT, TX	218	SAN ANGELO, TX	$8.35
39	FAIRFIELD, TX	16	LITTLE ROCK, AR	$11.74
39	FAIRFIELD, TX	17	FT. SMITH, AR	$11.30
39	FAIRFIELD, TX	19	MONROE, LA	$10.98
39	FAIRFIELD, TX	21	CLARKSVILLE, AR	$12.61
39	FAIRFIELD, TX	22	SHREVEPORT, LA	$12.64
39	FAIRFIELD, TX	86	SIOUX CITY, IA	$12.51
39	FAIRFIELD, TX	94	KANSAS CITY, MO	$11.77
39	FAIRFIELD, TX	153	EL PASO, TX	$7.02
39	FAIRFIELD, TX	184	OKLAHOMA CITY, OK	$6.59
39	FAIRFIELD, TX	185	ENID, OK	$6.55
39	FAIRFIELD, TX	186	TULSA, OK	$9.07
39	FAIRFIELD, TX	187	BOISE CITY, OK	$2.86
39	FAIRFIELD, TX	188	MCALESTER, OK	$9.12
39	FAIRFIELD, TX	189	LAWTON, OK	$5.79
39	FAIRFIELD, TX	210	WICHITA, FALLS, TX	$5.49
39	FAIRFIELD, TX	211	AMARILLO, TX	$2.12
39	FAIRFIELD, TX	212	AUSTIN, TX	$12.00
39	FAIRFIELD, TX	215	DALLAS, TX	$8.54
39	FAIRFIELD, TX	216	HOUSTON, TX	$11.45
39	FAIRFIELD, TX	217	SAN ANTONIO, TX	$11.64
39	FAIRFIELD, TX	218	SAN ANGELO, TX	$7.53
40	SAN ANTONIO, TX	212	AUSTIN, TX	$2.12
40	SAN ANTONIO, TX	213	LAREDO, TX	$3.18
40	SAN ANTONIO, TX	214	CORPUS CHRISTI, TX	$3.18
40	SAN ANTONIO, TX	215	DALLAS, TX	$5.94
40	SAN ANTONIO, TX	216	HOUSTON, TX	$4.24
40	SAN ANTONIO, TX	217	SAN ANTONIO, TX	$2.12
40	SAN ANTONIO, TX	218	SAN ANGELO, TX	$7.63
43	POTEAU, OK	16	LITTLE ROCK, AR	$3.71
43	POTEAU, OK	17	FT. SMITH, AR	$1.72
43	POTEAU, OK	19	MONROE, LA	$5.96
43	POTEAU, OK	20	JONESBORO, AR	$5.66
43	POTEAU, OK	21	CLARKSVILLE, AR	$2.59
43	POTEAU, OK	22	SHREVEPORT, LA	$4.66
43	POTEAU, OK	94	KANSAS CITY, MO	$6.85
43	POTEAU, OK	184	OKLAHOMA CITY, OK	$4.05
43	POTEAU, OK	185	ENID, OK	$5.00
43	POTEAU, OK	186	TULSA, OK	$1.93
43	POTEAU, OK	188	MCALESTER, OK	$2.35
43	POTEAU, OK	189	LAWTON, OK	$5.32
43	POTEAU, OK	210	WICHITA, FALLS, TX	$5.51
43	POTEAU, OK	211	AMARILLO, TX	$6.17
43	POTEAU, OK	215	DALLAS, TX	$4.75
46	MUSKOGEE, OK	17	FT. SMITH, AR	$1.70
46	MUSKOGEE, OK	21	CLARKSVILLE, AR	$2.86
46	MUSKOGEE, OK	68	DUBUQUE, IA	$16.22
46	MUSKOGEE, OK	94	KANSAS CITY, MO	$4.47
46	MUSKOGEE, OK	98	WICHITA, KS	$4.52
46	MUSKOGEE, OK	106	NEW ORLEANS, LA	$10.22
46	MUSKOGEE, OK	139	SPRINGFIELD, MO	$24.32
46	MUSKOGEE, OK	145	LINCOLN, NE	$9.75
46	MUSKOGEE, OK	184	OKLAHOMA CITY, OK	$3.33
46	MUSKOGEE, OK	185	ENID, OK	$2.42
46	MUSKOGEE, OK	186	TULSA, OK	$2.12
46	MUSKOGEE, OK	188	MCALESTER, OK	$1.31
47	PITTSBURGH, KS	17	FT. SMITH, AR	$2.18
47	PITTSBURGH, KS	21	CLARKSVILLE, AR	$3.01
47	PITTSBURGH, KS	94	KANSAS CITY, MO	$2.27
47	PITTSBURGH, KS	98	WICHITA, KS	$3.54
47	PITTSBURGH, KS	139	SPRINGFIELD, MO	$22.58
47	PITTSBURGH, KS	184	OKLAHOMA CITY, OK	$2.93
47	PITTSBURGH, KS	185	ENID, OK	$2.73
47	PITTSBURGH, KS	186	TULSA, OK	$2.12
47	PITTSBURGH, KS	188	MCALESTER, OK	$2.23
48	CLINTON, MO	94	KANSAS CITY, MO	$1.59
48	CLINTON, MO	98	WICHITA, KS	$9.94
48	CLINTON, MO	139	SPRINGFIELD, MO	$22.49
48	CLINTON, MO	186	TULSA, OK	$1.25
49	MACON, MO	65	PEORIA, IL	$2.06
49	MACON, MO	86	SIOUX CITY, IA	$4.22
49	MACON, MO	88	WATERLOO, IA	$10.22
49	MACON, MO	94	KANSAS CITY, MO	$2.57
49	MACON, MO	137	JEFFERSON CITY, MO	$11.11
49	MACON, MO	139	SPRINGFIELD, MO	$22.96
49	MACON, MO	186	TULSA, OK	$3.46
51	MOUND CITY, KS	98	WICHITA, KS	$4.24
56	ALBIA, IA	65	PEORIA, IL	$1.59
56	ALBIA, IA	86	SIOUX CITY, IA	$2.63
56	ALBIA, IA	88	WATERLOO, IA	$5.30
56	ALBIA, IA	92	DES MOINES, IA	$4.24
56	ALBIA, IA	94	KANSAS CITY, MO	$3.10
57	WINSLOW, AZ	13	LAS VEGAS, NV	$9.26
57	WINSLOW, AZ	14	FLAGSTAFF, AZ	$2.12
57	WINSLOW, AZ	15	PHOENIX, AZ	$3.48

Table F5. Transport rates for coal shipments by unit train—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
57	WINSLOW, AZ	24	LOS ANGELES, CA	$17.64
57	WINSLOW, AZ	33	SAN BERNADINO, CA	$5.79
57	WINSLOW, AZ	38	PUEBLO, CO	$5.60
57	WINSLOW, AZ	152	ALBUQUERQUE, NM	$6.11
57	WINSLOW, AZ	153	EL PASO, TX	$3.24
57	WINSLOW, AZ	154	LAS VEGAS, NM	$6.34
57	WINSLOW, AZ	155	CLOVIS, NM	$1.74
57	WINSLOW, AZ	156	SOCORRO NM	$4.37
57	WINSLOW, AZ	157	SANTE FE, NM	$3 14
57	WINSLOW, AZ	211	AMARILLO, TX	$3.96
61	RATON, NM	24	LOS ANGELES, CA	$27.31
61	RATON, NM	36	DENVER, CO	$6.23
61	RATON, NM	38	PUEBLO, CO	$2.46
61	RATON, NM	106	NEW ORLEANS, LA	$23.32
61	RATON, NM	148	RENO, NV	$11.26
61	RATON, NM	153	EL PASO, TX	$2.35
61	RATON, NM	154	LAS VEGAS, NM	$7.78
61	RATON, NM	155	CLOVIS, NM	$7.21
61	RATON, NM	156	SOCORRO NM	$4.11
61	RATON, NM	157	SANTE FE, NM	$4.58
61	RATON, NM	187	BOISE CITY, OK	$5.09
61	RATON, NM	210	WICHITA, FALLS, TX	$8.48
61	RATON, NM	211	AMARILLO, TX	$5.30
62	GUNNISON, CO	12	LORDSBURG, NM	$12.32
62	GUNNISON, CO	13	LAS VEGAS, NV	$15.71
62	GUNNISON, CO	14	FLAGSTAFF, AZ	$13.10
62	GUNNISON, CO	15	PHOENIX, AZ	$16.37
62	GUNNISON, CO	24	LOS ANGELES, CA	$27.64
62	GUNNISON, CO	33	SAN BERNADINO, CA	$17.28
62	GUNNISON, CO	34	LA JUNTA, CO	$6.36
62	GUNNISON, CO	35	GRAND JUNCTION, CO	$10.37
62	GUNNISON, CO	36	DENVER, CO	$6.44
62	GUNNISON, CO	40	STEAMBOAT SPRINGS,CO	$10.26
62	GUNNISON, CO	61	POCATELLO, ID	$17.02
62	GUNNISON, CO	63	TWIN FALLS, ID	$18.70
62	GUNNISON, CO	144	MISSOULA, MT	$16.28
62	GUNNISON, CO	146	GRAND ISLAND, NE	$20.22
62	GUNNISON, CO	147	WINNEMUCA, NV	$18.74
62	GUNNISON, CO	148	RENO, NV	$33.60
62	GUNNISON, CO	152	ALBUQUERQUE, NM	$11.47
62	GUNNISON, CO	153	EL PASO, TX	$4.45
62	GUNNISON, CO	154	LAS VEGAS, NM	$9.05
62	GUNNISON, CO	155	CLOVIS, NM	$9.54
62	GUNNISON, CO	156	SOCORRO NM	$7.44
62	GUNNISON, CO	157	SANTE FE, NM	$8.14
62	GUNNISON, CO	184	OKLAHOMA CITY, OK	$9.37
62	GUNNISON, CO	185	ENID, OK	$8.12
62	GUNNISON, CO	186	TULSA, OK	$8.18
62	GUNNISON, CO	187	BOISE CITY, OK	$6.59
62	GUNNISON, CO	188	MCALESTER, OK	$11.07
62	GUNNISON, CO	189	LAWTON, OK	$9.14
62	GUNNISON, CO	210	WICHITA, FALLS, TX	$8.95
62	GUNNISON, CO	211	AMARILLO, TX	$3.99
62	GUNNISON, CO	212	AUSTIN, TX	$13.33
62	GUNNISON, CO	213	LAREDO, TX	$16.68
62	GUNNISON, CO	214	CORPUS CHRISTI, TX	$16.30
62	GUNNISON, CO	215	DALLAS, TX	$11.00
62	GUNNISON, CO	216	HOUSTON, TX	$14.29
62	GUNNISON, CO	217	SAN ANTONIO, TX	$14.48
62	GUNNISON, CO	218	SAN ANGELO, TX	$10.32
62	GUNNISON, CO	219	MORGAN, UT	$11.43
62	GUNNISON, CO	220	SALT LAKE CITY, UT	$10.56
62	GUNNISON, CO	241	CASPER, WY	$14.69
62	GUNNISON, CO	242	CHEYENNE, WY	$7.21
62	GUNNISON, CO	243	ROCK SPRINGS, WY	$15.62
63	STEAMBOAT SPRINGS, CO	40	STEAMBOAT SPRINGS,CO	$3.48
63	STEAMBOAT SPRINGS, CO	148	RENO, NV	$42.40
63	STEAMBOAT SPRINGS, CO	153	EL PASO, TX	$10.60
63	STEAMBOAT SPRINGS, CO	187	BOISE CITY, OK	$10.07
63	STEAMBOAT SPRINGS, CO	211	AMARILLO, TX	$12.72
66	RAWLINS, WY	12	LORDSBURG, NM	$16.51
66	RAWLINS, WY	13	LAS VEGAS, NV	$14.33
66	RAWLINS, WY	14	FLAGSTAFF, AZ	$17.30
66	RAWLINS, WY	16	LITTLE ROCK, AR	$17.13
66	RAWLINS, WY	17	FT. SMITH, AR	$14.92
66	RAWLINS, WY	20	JONESBORO, AR	$16.96
66	RAWLINS, WY	21	CLARKSVILLE, AR	$15.75
66	RAWLINS, WY	22	SHREVEPORT, LA	$17.96
66	RAWLINS, WY	33	SAN BERNADINO, CA	$15.90
66	RAWLINS, WY	34	LA JUNTA, CO	$9.54
66	RAWLINS, WY	35	GRAND JUNCTION, CO	$14.84
66	RAWLINS, WY	36	DENVER, CO	$7.31
66	RAWLINS, WY	37	GREELEY, CO	$10.15
66	RAWLINS, WY	38	PUEBLO, CO	$4.52
66	RAWLINS, WY	39	ALAMOSA, CO	$11.02
66	RAWLINS, WY	40	STEAMBOAT SPRINGS,CO	$13.63
66	RAWLINS, WY	61	POCATELLO, ID	$5.94
66	RAWLINS, WY	63	TWIN FALLS, ID	$14.10
66	RAWLINS, WY	64	BOISE, ID	$15.79
66	RAWLINS, WY	65	PEORIA, IL	$14.59
66	RAWLINS, WY	85	OMAHA, NE	$14.78
66	RAWLINS, WY	86	SIOUX CITY, IA	$10.03
66	RAWLINS, WY	87	SIOUX FALLS, SD	$18.91

Table F5. Transport rates for coal shipments by unit train—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
66	RAWLINS, WY	90	SPENCER, IA	$18.95
66	RAWLINS, WY	92	DES MOINES, IA	$18.93
66	RAWLINS, WY	93	CRESTON, IA	$18.32
66	RAWLINS, WY	94	KANSAS CITY, MO	$12.27
66	RAWLINS, WY	95	SALINA, KS	$17.09
66	RAWLINS, WY	96	TOPEKA, KS	$17.70
66	RAWLINS, WY	97	OAKLEY, KS	$14.50
66	RAWLINS, WY	98	WICHITA, KS	$18.19
66	RAWLINS, WY	100	DODGE CITY, KS	$16.35
66	RAWLINS, WY	122	GRAND RAPIDS, MI	$19.00
66	RAWLINS, WY	128	LA CROSSE, WI	$15.58
66	RAWLINS, WY	129	DULUTH, MN	$15.77
66	RAWLINS, WY	139	SPRINGFIELD, MO	$17.34
66	RAWLINS, WY	140	BILLINGS, MT	$18.63
66	RAWLINS, WY	141	GREAT FALLS, MT	$17.24
66	RAWLINS, WY	143	MILES CITY, MT	$17.70
66	RAWLINS, WY	144	MISSOULA, MT	$16.30
66	RAWLINS, WY	145	LINCOLN, NE	$11.87
66	RAWLINS, WY	146	GRAND ISLAND, NE	$16.64
66	RAWLINS, WY	147	WINNEMUCA, NV	$15.14
66	RAWLINS, WY	152	ALBUQUERQUE, NM	$15.67
66	RAWLINS, WY	153	EL PASO, TX	$8.65
66	RAWLINS, WY	154	LAS VEGAS, NM	$13.25
66	RAWLINS, WY	155	CLOVIS, NM	$13.74
66	RAWLINS, WY	156	SOCORRO NM	$11.64
66	RAWLINS, WY	157	SANTE FE, NM	$12.34
66	RAWLINS, WY	184	OKLAHOMA CITY, OK	$13.46
66	RAWLINS, WY	185	ENID, OK	$12.30
66	RAWLINS, WY	186	TULSA, OK	$11.98
66	RAWLINS, WY	187	BOISE CITY, OK	$8.20
66	RAWLINS, WY	188	MCALESTER, OK	$14.86
66	RAWLINS, WY	189	LAWTON, OK	$13.33
66	RAWLINS, WY	191	PENDLETON, OR	$17.79
66	RAWLINS, WY	205	RAPID CITY, SD	$11.66
66	RAWLINS, WY	206	PIERRE, SD	$8.27
66	RAWLINS, WY	210	WICHITA, FALLS, TX	$13.14
66	RAWLINS, WY	211	AMARILLO, TX	$8.18
66	RAWLINS, WY	212	AUSTIN, TX	$17.53
66	RAWLINS, WY	215	DALLAS, TX	$15.20
66	RAWLINS, WY	216	HOUSTON, TX	$18.49
66	RAWLINS, WY	217	SAN ANTONIO, TX	$18.68
66	RAWLINS, WY	218	SAN ANGELO, TX	$14.52
66	RAWLINS, WY	219	MORGAN, UT	$7.04
66	RAWLINS, WY	220	SALT LAKE CITY, UT	$7.91
66	RAWLINS, WY	241	CASPER, WY	$12.64
66	RAWLINS, WY	242	CHEYENNE, WY	$9.54
66	RAWLINS, WY	243	ROCK SPRINGS, WY	$8.69
67	SHERIDAN & JOHNSON CTY, WY	36	DENVER, CO	$11.72
67	SHERIDAN & JOHNSON CTY, WY	38	PUEBLO, CO	$8.93
67	SHERIDAN & JOHNSON CTY, WY	65	PEORIA, IL	$15.41
67	SHERIDAN & JOHNSON CTY, WY	67	CHICAGO, IL	$25.29
67	SHERIDAN & JOHNSON CTY, WY	86	SIOUX CITY, IA	$9.29
67	SHERIDAN & JOHNSON CTY, WY	92	DES MOINES, IA	$12.87
67	SHERIDAN & JOHNSON CTY, WY	94	KANSAS CITY, MO	$13.46
67	SHERIDAN & JOHNSON CTY, WY	129	DULUTH, MN	$14.46
67	SHERIDAN & JOHNSON CTY, WY	139	SPRINGFIELD, MO	$12.11
67	SHERIDAN & JOHNSON CTY, WY	142	HELENA, MT	$13.84
67	SHERIDAN & JOHNSON CTY, WY	153	EL PASO, TX	$13.06
67	SHERIDAN & JOHNSON CTY, WY	185	ENID, OK	$13.84
67	SHERIDAN & JOHNSON CTY, WY	186	TULSA, OK	$13.40
67	SHERIDAN & JOHNSON CTY, WY	187	BOISE CITY, OK	$12.61
67	SHERIDAN & JOHNSON CTY, WY	205	RAPID CITY, SD	$12.51
67	SHERIDAN & JOHNSON CTY, WY	206	PIERRE, SD	$8.48
67	SHERIDAN & JOHNSON CTY, WY	211	AMARILLO, TX	$12.59
67	SHERIDAN & JOHNSON CTY, WY	241	CASPER, WY	$13.48
67	SHERIDAN & JOHNSON CTY, WY	242	CHEYENNE, WY	$14.76
68	ROCK SPRINGS, WY	13	LAS VEGAS, NV	$12.44
68	ROCK SPRINGS, WY	36	DENVER, CO	$8.84
68	ROCK SPRINGS, WY	37	GREELEY, CO	$11.66
68	ROCK SPRINGS, WY	38	PUEBLO, CO	$10.60
68	ROCK SPRINGS, WY	61	POCATELLO, ID	$10.54
68	ROCK SPRINGS, WY	63	TWIN FALLS, ID	$12.21
68	ROCK SPRINGS, WY	86	SIOUX CITY, IA	$11.53
68	ROCK SPRINGS, WY	153	EL PASO, TX	$10.15
68	ROCK SPRINGS, WY	187	BOISE CITY, OK	$9.71
68	ROCK SPRINGS, WY	193	PORTLAND, OR	$19.02
68	ROCK SPRINGS, WY	206	PIERRE, SD	$9.79
68	ROCK SPRINGS, WY	211	AMARILLO, TX	$9.69
68	ROCK SPRINGS, WY	219	MORGAN, UT	$5.15
68	ROCK SPRINGS, WY	220	SALT LAKE CITY, UT	$6.00
68	ROCK SPRINGS, WY	242	CHEYENNE, WY	$11.05
68	ROCK SPRINGS, WY	243	ROCK SPRINGS, WY	$6.81
70	PRICE, UT	12	LORDSBURG, NM	$23.32
70	PRICE, UT	13	LAS VEGAS, NV	$7.74
70	PRICE, UT	14	FLAGSTAFF, AZ	$21.20
70	PRICE, UT	15	PHOENIX, AZ	$21.20
70	PRICE, UT	23	LONE PINE, CA	$17.38
70	PRICE, UT	24	LOS ANGELES, CA	$19.65
70	PRICE, UT	25	SALINAS, CA	$16.39
70	PRICE, UT	27	WESTWOOD, CA	$15.43
70	PRICE, UT	28	SACRAMENTO, CA	$16.98
70	PRICE, UT	29	SAN DIEGO, CA	$17.60
70	PRICE, UT	30	SAN FRANCISCO, CA	$18.23

Table F5. Transport rates for coal shipments by unit train—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
70	PRICE, UT	31	FRESNO, CA	$17.89
70	PRICE, UT	33	SAN BERNADINO, CA	$15.37
70	PRICE, UT	34	LA JUNTA, CO	$12.85
70	PRICE, UT	35	GRAND JUNCTION, CO	$4.24
70	PRICE, UT	40	STEAMBOAT SPRINGS,CO	$8.01
70	PRICE, UT	61	POCATELLO, ID	$9.03
70	PRICE, UT	62	SPOKANE, WA	$15.94
70	PRICE, UT	63	TWIN FALLS, ID	$10.71
70	PRICE, UT	64	BOISE, ID	$12.40
70	PRICE, UT	79	CINCINNATI, OH	$33.92
70	PRICE, UT	140	BILLINGS, MT	$15.24
70	PRICE, UT	141	GREAT FALLS, MT	$13.84
70	PRICE, UT	142	HELENA, MT	$18.27
70	PRICE, UT	143	MILES CITY, MT	$14.31
70	PRICE, UT	144	MISSOULA, MT	$18.06
70	PRICE, UT	147	WINNEMUCA, NV	$10.75
70	PRICE, UT	152	ALBUQUERQUE, NM	$21.84
70	PRICE, UT	153	EL PASO, TX	$14.84
70	PRICE, UT	154	LAS VEGAS, NM	$12.66
70	PRICE, UT	155	CLOVIS, NM	$13.14
70	PRICE, UT	156	SOCORRO NM	$16.96
70	PRICE, UT	157	SANTE FE, NM	$42.40
70	PRICE, UT	184	OKLAHOMA CITY, OK	$21.20
70	PRICE, UT	185	ENID, OK	$20.78
70	PRICE, UT	186	TULSA, OK	$21.41
70	PRICE, UT	187	BOISE CITY, OK	$7.61
70	PRICE, UT	188	MCALESTER, OK	$24.38
70	PRICE, UT	189	LAWTON, OK	$21.20
70	PRICE, UT	190	BEND, OR	$23.32
70	PRICE, UT	191	PENDLETON, OR	$14.39
70	PRICE, UT	192	ASTORIA, OR	$23.32
70	PRICE, UT	193	PORTLAND, OR	$17.51
70	PRICE, UT	194	MEDFORD, OR	$17.57
70	PRICE, UT	210	WICHITA, FALLS, TX	$21.20
70	PRICE, UT	211	AMARILLO, TX	$17.17
70	PRICE, UT	212	AUSTIN, TX	$25.44
70	PRICE, UT	215	DALLAS, TX	$24.38
70	PRICE, UT	216	HOUSTON, TX	$28.62
70	PRICE, UT	217	SAN ANTONIO, TX	$29.15
70	PRICE, UT	218	SAN ANGELO, TX	$13.93
70	PRICE, UT	219	MORGAN, UT	$3.46
70	PRICE, UT	220	SALT LAKE CITY, UT	$2.59
70	PRICE, UT	227	WENATCHEE, WA	$17.49
70	PRICE, UT	228	OLYMPIA, WA	$23.32
70	PRICE, UT	229	SEATTLE, WA	$21.73
70	PRICE, UT	230	YAKIMA, WA	$16.39
70	PRICE, UT	241	CASPER, WY	$15.84
70	PRICE, UT	242	CHEYENNE, WY	$12.74
70	PRICE, UT	243	ROCK SPRINGS, WY	$7.42
75	FORSYTH, MT	139	SPRINGFIELD, MO	$10.01
75	FORSYTH, MT	142	HELENA, MT	$2.12
75	FORSYTH, MT	206	PIERRE, SD	$11.87
80	MINOT, ND	38	PUEBLO, CO	$19.40
80	MINOT, ND	65	PEORIA, IL	$14.84
80	MINOT, ND	85	OMAHA, NE	$11.77
80	MINOT, ND	86	SIOUX CITY, IA	$11.66
80	MINOT, ND	87	SIOUX FALLS, SD	$11.45
80	MINOT, ND	89	MASON CITY, IA	$13.65
80	MINOT, ND	90	SPENCER, IA	$12.76
80	MINOT, ND	94	KANSAS CITY, MO	$13.78
80	MINOT, ND	122	GRAND RAPIDS, MI	$15.58
80	MINOT, ND	126	MARQUETTE, MI	$12.51
80	MINOT, ND	127	ST. CLOUD, MN	$12.08
80	MINOT, ND	129	DULUTH, MN	$13.14
80	MINOT, ND	130	FARGO, ND	$8.35
80	MINOT, ND	131	MINNEAPOLIS, MN	$12.93
80	MINOT, ND	132	THIEF RIVER FALLS,MN	$8.65
80	MINOT, ND	133	WILLMAR, MN	$10.54
80	MINOT, ND	139	SPRINGFIELD, MO	$11.49
80	MINOT, ND	140	BILLINGS, MT	$12.93
80	MINOT, ND	142	HELENA, MT	$9.39
80	MINOT, ND	148	RENO, NV	$26.58
80	MINOT, ND	172	BISMARK, ND	$7.72
80	MINOT, ND	184	OKLAHOMA CITY, OK	$18.44
80	MINOT, ND	185	ENID, OK	$17.28
80	MINOT, ND	186	TULSA, OK	$17.81
80	MINOT, ND	205	RAPID CITY, SD	$13.74
80	MINOT, ND	206	PIERRE, SD	$9.33
87	CENTRALIA, WA	27	WESTWOOD, CA	$14.76
87	CENTRALIA, WA	62	SPOKANE, WA	$10.01
87	CENTRALIA, WA	64	BOISE, ID	$14.84
87	CENTRALIA, WA	190	BEND, OR	$9.50
87	CENTRALIA, WA	191	PENDLETON, OR	$9.12
87	CENTRALIA, WA	192	ASTORIA, OR	$7.40
87	CENTRALIA, WA	193	PORTLAND, OR	$6.08
87	CENTRALIA, WA	194	MEDFORD, OR	$10.75
87	CENTRALIA, WA	227	WENATCHEE, WA	$8.27
87	CENTRALIA, WA	228	OLYMPIA, WA	$5.17
87	CENTRALIA, WA	230	YAKIMA, WA	$7.76
90	SAN JUAN CTY, NM	12	LORDSBURG, NM	$8.48
90	SAN JUAN CTY, NM	13	LAS VEGAS, NV	$14.84
90	SAN JUAN CTY, NM	14	FLAGSTAFF, AZ	$2.37
90	SAN JUAN CTY, NM	15	PHOENIX, AZ	$8.69

Table F5. Transport rates for coal shipments by unit train—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
90	SAN JUAN CTY, NM	16	LITTLE ROCK, AR	$13.55
90	SAN JUAN CTY, NM	17	FT. SMITH, AR	$19.61
90	SAN JUAN CTY, NM	19	MONROE, LA	$13.95
90	SAN JUAN CTY, NM	20	JONESBORO, AR	$15.48
90	SAN JUAN CTY, NM	21	CLARKSVILLE, AR	$12.57
90	SAN JUAN CTY, NM	22	SHREVEPORT, LA	$12.59
90	SAN JUAN CTY, NM	23	LONE PINE, CA	$16.37
90	SAN JUAN CTY, NM	25	SALINAS, CA	$15.37
90	SAN JUAN CTY, NM	29	SAN DIEGO, CA	$16.60
90	SAN JUAN CTY, NM	31	FRESNO, CA	$16.90
90	SAN JUAN CTY, NM	32	SAN LUIS OBISPO, CA	$18.21
90	SAN JUAN CTY, NM	33	SAN BERNADINO, CA	$13.04
90	SAN JUAN CTY, NM	34	LA JUNTA, CO	$12.32
90	SAN JUAN CTY, NM	35	GRAND JUNCTION, CO	$17.21
90	SAN JUAN CTY, NM	36	DENVER, CO	$12.93
90	SAN JUAN CTY, NM	37	GREELEY, CO	$14.90
90	SAN JUAN CTY, NM	38	PUEBLO, CO	$10.60
90	SAN JUAN CTY, NM	39	ALAMOSA, CO	$12.87
90	SAN JUAN CTY, NM	40	STEAMBOAT SPRINGS,CO	$16.90
90	SAN JUAN CTY, NM	65	PEORIA, IL	$15.65
90	SAN JUAN CTY, NM	85	OMAHA, NE	$17.98
90	SAN JUAN CTY, NM	86	SIOUX CITY, IA	$13.72
90	SAN JUAN CTY, NM	94	KANSAS CITY, MO	$12.51
90	SAN JUAN CTY, NM	95	SALINA, KS	$16.64
90	SAN JUAN CTY, NM	96	TOPEKA, KS	$17.94
90	SAN JUAN CTY, NM	97	OAKLEY, KS	$16.60
90	SAN JUAN CTY, NM	98	WICHITA, KS	$16.24
90	SAN JUAN CTY, NM	99	PITTSBURG, KS	$18.57
90	SAN JUAN CTY, NM	100	DODGE CITY, KS	$14.65
90	SAN JUAN CTY, NM	106	NEW ORLEANS, LA	$18.15
90	SAN JUAN CTY, NM	147	WINNEMUCA, NV	$17.38
90	SAN JUAN CTY, NM	152	ALBUQUERQUE, NM	$7.63
90	SAN JUAN CTY, NM	153	EL PASO, TX	$6.36
90	SAN JUAN CTY, NM	154	LAS VEGAS, NM	$6.04
90	SAN JUAN CTY, NM	155	CLOVIS, NM	$0.57
90	SAN JUAN CTY, NM	156	SOCORRO NM	$3.20
90	SAN JUAN CTY, NM	157	SANTE FE, NM	$8.48
90	SAN JUAN CTY, NM	206	PIERRE, SD	$13.55
90	SAN JUAN CTY, NM	219	MORGAN, UT	$18.10
90	SAN JUAN CTY, NM	220	SALT LAKE CITY, UT	$17.43
90	SAN JUAN CTY, NM	241	CASPER, WY	$18.83
90	SAN JUAN CTY, NM	242	CHEYENNE, WY	$15.71
91	MCKINLEY CTY, NM	12	LORDSBURG, NM	$6.30
91	MCKINLEY CTY, NM	14	FLAGSTAFF, AZ	$3.96
91	MCKINLEY CTY, NM	15	PHOENIX, AZ	$6.81
91	MCKINLEY CTY, NM	24	LOS ANGELES, CA	$20.95
91	MCKINLEY CTY, NM	38	PUEBLO, CO	$8.48
91	MCKINLEY CTY, NM	152	ALBUQUERQUE, NM	$5.77
91	MCKINLEY CTY, NM	153	EL PASO, TX	$2.90
91	MCKINLEY CTY, NM	154	LAS VEGAS, NM	$6.00
91	MCKINLEY CTY, NM	155	CLOVIS, NM	$1.40
91	MCKINLEY CTY, NM	156	SOCORRO NM	$4.03
91	MCKINLEY CTY, NM	157	SANTE FE, NM	$2.82
91	MCKINLEY CTY, NM	187	BOISE CITY, OK	$9.54
91	MCKINLEY CTY, NM	211	AMARILLO, TX	$8.48
91	MCKINLEY CTY, NM	218	SAN ANGELO, TX	$12.72
92	CARBON CTY, WY	12	LORDSBURG, NM	$16.85
92	CARBON CTY, WY	13	LAS VEGAS, NV	$14.69
92	CARBON CTY, WY	14	FLAGSTAFF, AZ	$17.64
92	CARBON CTY, WY	16	LITTLE ROCK, AR	$17.49
92	CARBON CTY, WY	17	FT. SMITH, AR	$15.29
92	CARBON CTY, WY	20	JONESBORO, AR	$17.32
92	CARBON CTY, WY	21	CLARKSVILLE, AR	$16.09
92	CARBON CTY, WY	22	SHREVEPORT, LA	$18.32
92	CARBON CTY, WY	33	SAN BERNADINO, CA	$16.24
92	CARBON CTY, WY	34	LA JUNTA, CO	$13.80
92	CARBON CTY, WY	35	GRAND JUNCTION, CO	$15.18
92	CARBON CTY, WY	36	DENVER, CO	$7.67
92	CARBON CTY, WY	37	GREELEY, CO	$8.90
92	CARBON CTY, WY	38	PUEBLO, CO	$8.27
92	CARBON CTY, WY	39	ALAMOSA, CO	$14.76
92	CARBON CTY, WY	40	STEAMBOAT SPRINGS,CO	$13.99
92	CARBON CTY, WY	61	POCATELLO, ID	$8.90
92	CARBON CTY, WY	63	TWIN FALLS, ID	$14.46
92	CARBON CTY, WY	64	BOISE, ID	$16.15
92	CARBON CTY, WY	65	PEORIA, IL	$14.95
92	CARBON CTY, WY	67	CHICAGO, IL	$25.33
92	CARBON CTY, WY	73	ROCKFORD, IL	$24.36
92	CARBON CTY, WY	85	OMAHA, NE	$15.12
92	CARBON CTY, WY	86	SIOUX CITY, IA	$15.37
92	CARBON CTY, WY	93	CRESTON, IA	$18.68
92	CARBON CTY, WY	94	KANSAS CITY, MO	$12.64
92	CARBON CTY, WY	95	SALINA, KS	$17.45
92	CARBON CTY, WY	96	TOPEKA, KS	$18.04
92	CARBON CTY, WY	97	OAKLEY, KS	$14.84
92	CARBON CTY, WY	98	WICHITA, KS	$18.53
92	CARBON CTY, WY	100	DODGE CITY, KS	$16.68
92	CARBON CTY, WY	128	LA CROSSE, WI	$15.92
92	CARBON CTY, WY	129	DULUTH, MN	$16.13
92	CARBON CTY, WY	139	SPRINGFIELD, MO	$17.70
92	CARBON CTY, WY	140	BILLINGS, MT	$19.00
92	CARBON CTY, WY	141	GREAT FALLS, MT	$17.60
92	CARBON CTY, WY	143	MILES CITY, MT	$18.06

Table F5. Transport rates for coal shipments by unit train—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
92	CARBON CTY, WY	144	MISSOULA, MT	$16.64
92	CARBON CTY, WY	145	LINCOLN, NE	$15.31
92	CARBON CTY, WY	146	GRAND ISLAND, NE	$16.98
92	CARBON CTY, WY	147	WINNEMUCA, NV	$15.48
92	CARBON CTY, WY	152	ALBUQUERQUE, NM	$16.01
92	CARBON CTY, WY	153	EL PASO, TX	$12.72
92	CARBON CTY, WY	154	LAS VEGAS, NM	$13.59
92	CARBON CTY, WY	155	CLOVIS, NM	$14.08
92	CARBON CTY, WY	156	SOCORRO NM	$11.98
92	CARBON CTY, WY	157	SANTE FE, NM	$21.20
92	CARBON CTY, WY	184	OKLAHOMA CITY, OK	$13.80
92	CARBON CTY, WY	185	ENID, OK	$12.64
92	CARBON CTY, WY	186	TULSA, OK	$12.32
92	CARBON CTY, WY	187	BOISE CITY, OK	$13.25
92	CARBON CTY, WY	188	MCALESTER, OK	$15.20
92	CARBON CTY, WY	189	LAWTON, OK	$13.70
92	CARBON CTY, WY	191	PENDLETON, OR	$18.15
92	CARBON CTY, WY	205	RAPID CITY, SD	$15.18
92	CARBON CTY, WY	206	PIERRE, SD	$14.84
92	CARBON CTY, WY	210	WICHITA, FALLS, TX	$13.50
92	CARBON CTY, WY	211	AMARILLO, TX	$14.84
92	CARBON CTY, WY	212	AUSTIN, TX	$17.89
92	CARBON CTY, WY	215	DALLAS, TX	$15.56
92	CARBON CTY, WY	216	HOUSTON, TX	$18.83
92	CARBON CTY, WY	217	SAN ANTONIO, TX	$19.04
92	CARBON CTY, WY	218	SAN ANGELO, TX	$14.86
92	CARBON CTY, WY	219	MORGAN, UT	$7.40
92	CARBON CTY, WY	220	SALT LAKE CITY, UT	$8.25
92	CARBON CTY, WY	241	CASPER, WY	$9.12
92	CARBON CTY, WY	242	CHEYENNE, WY	$9.88
92	CARBON CTY, WY	243	ROCK SPRINGS, WY	$9.05
93	MOFFAT & ROUTT CTY, CO	12	LORDSBURG, NM	$18.02
93	MOFFAT & ROUTT CTY, CO	13	LAS VEGAS, NV	$16.54
93	MOFFAT & ROUTT CTY, CO	14	FLAGSTAFF, AZ	$18.02
93	MOFFAT & ROUTT CTY, CO	15	PHOENIX, AZ	$15.98
93	MOFFAT & ROUTT CTY, CO	33	SAN BERNADINO, CA	$19.08
93	MOFFAT & ROUTT CTY, CO	34	LA JUNTA, CO	$8.88
93	MOFFAT & ROUTT CTY, CO	35	GRAND JUNCTION, CO	$6.59
93	MOFFAT & ROUTT CTY, CO	36	DENVER, CO	$2.76
93	MOFFAT & ROUTT CTY, CO	37	GREELEY, CO	$7.08
93	MOFFAT & ROUTT CTY, CO	38	PUEBLO, CO	$6.36
93	MOFFAT & ROUTT CTY, CO	39	ALAMOSA, CO	$9.84
93	MOFFAT & ROUTT CTY, CO	40	STEAMBOAT SPRINGS,CO	$3.60
93	MOFFAT & ROUTT CTY, CO	61	POCATELLO, ID	$13.23
93	MOFFAT & ROUTT CTY, CO	63	TWIN FALLS, ID	$14.90
93	MOFFAT & ROUTT CTY, CO	64	BOISE, ID	$16.60
93	MOFFAT & ROUTT CTY, CO	70	ST. LOUIS, MO	$20.35
93	MOFFAT & ROUTT CTY, CO	85	OMAHA, NE	$14.84
93	MOFFAT & ROUTT CTY, CO	86	SIOUX CITY, IA	$14.63
93	MOFFAT & ROUTT CTY, CO	87	SIOUX FALLS, SD	$15.98
93	MOFFAT & ROUTT CTY, CO	94	KANSAS CITY, MO	$8.97
93	MOFFAT & ROUTT CTY, CO	95	SALINA, KS	$12.59
93	MOFFAT & ROUTT CTY, CO	96	TOPEKA, KS	$14.29
93	MOFFAT & ROUTT CTY, CO	97	OAKLEY, KS	$9.99
93	MOFFAT & ROUTT CTY, CO	98	WICHITA, KS	$13.67
93	MOFFAT & ROUTT CTY, CO	99	PITTSBURG, KS	$15.67
93	MOFFAT & ROUTT CTY, CO	100	DODGE CITY, KS	$11.77
93	MOFFAT & ROUTT CTY, CO	140	BILLINGS, MT	$18.74
93	MOFFAT & ROUTT CTY, CO	141	GREAT FALLS, MT	$18.04
93	MOFFAT & ROUTT CTY, CO	142	HELENA, MT	$17.83
93	MOFFAT & ROUTT CTY, CO	143	MILES CITY, MT	$18.51
93	MOFFAT & ROUTT CTY, CO	144	MISSOULA, MT	$13.23
93	MOFFAT & ROUTT CTY, CO	145	LINCOLN, NE	$12.04
93	MOFFAT & ROUTT CTY, CO	146	GRAND ISLAND, NE	$16.45
93	MOFFAT & ROUTT CTY, CO	147	WINNEMUCA, NV	$14.95
93	MOFFAT & ROUTT CTY, CO	148	RENO, NV	$31.48
93	MOFFAT & ROUTT CTY, CO	152	ALBUQUERQUE, NM	$16.96
93	MOFFAT & ROUTT CTY, CO	153	EL PASO, TX	$11.34
93	MOFFAT & ROUTT CTY, CO	154	LAS VEGAS, NM	$8.69
93	MOFFAT & ROUTT CTY, CO	155	CLOVIS, NM	$14.63
93	MOFFAT & ROUTT CTY, CO	156	SOCORRO NM	$12.72
93	MOFFAT & ROUTT CTY, CO	157	SANTE FE, NM	$29.68
93	MOFFAT & ROUTT CTY, CO	172	BISMARK, ND	$18.74
93	MOFFAT & ROUTT CTY, CO	184	OKLAHOMA CITY, OK	$16.75
93	MOFFAT & ROUTT CTY, CO	185	ENID, OK	$14.84
93	MOFFAT & ROUTT CTY, CO	186	TULSA, OK	$16.54
93	MOFFAT & ROUTT CTY, CO	187	BOISE CITY, OK	$10.60
93	MOFFAT & ROUTT CTY, CO	188	MCALESTER, OK	$18.66
93	MOFFAT & ROUTT CTY, CO	189	LAWTON, OK	$16.54
93	MOFFAT & ROUTT CTY, CO	191	PENDLETON, OR	$18.59
93	MOFFAT & ROUTT CTY, CO	205	RAPID CITY, SD	$12.30
93	MOFFAT & ROUTT CTY, CO	206	PIERRE, SD	$14.63
93	MOFFAT & ROUTT CTY, CO	219	MORGAN, UT	$10.60
93	MOFFAT & ROUTT CTY, CO	220	SALT LAKE CITY, UT	$10.60
94	SWEETWATER CTY, WY	13	LAS VEGAS, NV	$12.64
94	SWEETWATER CTY, WY	36	DENVER, CO	$9.03
94	SWEETWATER CTY, WY	37	GREELEY, CO	$7.21
94	SWEETWATER CTY, WY	38	PUEBLO, CO	$10.60
94	SWEETWATER CTY, WY	61	POCATELLO, ID	$5.53
94	SWEETWATER CTY, WY	63	TWIN FALLS, ID	$8.06
94	SWEETWATER CTY, WY	67	CHICAGO, IL	$26.69
94	SWEETWATER CTY, WY	86	SIOUX CITY, IA	$11.72
94	SWEETWATER CTY, WY	146	GRAND ISLAND, NE	$10.60
94	SWEETWATER CTY, WY	147	WINNEMUCA, NV	$13.44

Table F5. Transport rates for coal shipments by unit train—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
94	SWEETWATER CTY, WY	153	EL PASO, TX	$10.35
94	SWEETWATER CTY, WY	156	SOCORRO NM	$13.33
94	SWEETWATER CTY, WY	186	TULSA, OK	$13.67
94	SWEETWATER CTY, WY	187	BOISE CITY, OK	$9.90
94	SWEETWATER CTY, WY	206	PIERRE, SD	$9.99
94	SWEETWATER CTY, WY	211	AMARILLO, TX	$9.88
94	SWEETWATER CTY, WY	219	MORGAN, UT	$5.34
94	SWEETWATER CTY, WY	220	SALT LAKE CITY, UT	$6.19
94	SWEETWATER CTY, WY	242	CHEYENNE, WY	$6.36
94	SWEETWATER CTY, WY	243	ROCK SPRINGS, WY	$2.12
95	POWDER RIVER BASIN, MT	17	FT. SMITH, AR	$18.74
95	POWDER RIVER BASIN, MT	36	DENVER, CO	$14.54
95	POWDER RIVER BASIN, MT	37	GREELEY, CO	$17.38
95	POWDER RIVER BASIN, MT	38	PUEBLO, CO	$18.02
95	POWDER RIVER BASIN, MT	61	POCATELLO, ID	$15.86
95	POWDER RIVER BASIN, MT	62	SPOKANE, WA	$15.22
95	POWDER RIVER BASIN, MT	63	TWIN FALLS, ID	$17.53
95	POWDER RIVER BASIN, MT	65	PEORIA, IL	$15.35
95	POWDER RIVER BASIN, MT	67	CHICAGO, IL	$24.74
95	POWDER RIVER BASIN, MT	68	DUBUQUE, IA	$21.09
95	POWDER RIVER BASIN, MT	85	OMAHA, NE	$16.56
95	POWDER RIVER BASIN, MT	86	SIOUX CITY, IA	$14.84
95	POWDER RIVER BASIN, MT	87	SIOUX FALLS, SD	$16.26
95	POWDER RIVER BASIN, MT	89	MASON CITY, IA	$18.89
95	POWDER RIVER BASIN, MT	90	SPENCER, IA	$17.62
95	POWDER RIVER BASIN, MT	94	KANSAS CITY, MO	$15.14
95	POWDER RIVER BASIN, MT	122	GRAND RAPIDS, MI	$17.41
95	POWDER RIVER BASIN, MT	123	DETROIT, MI	$20.97
95	POWDER RIVER BASIN, MT	124	TOLEDO, OH	$27.94
95	POWDER RIVER BASIN, MT	126	MARQUETTE, MI	$17.00
95	POWDER RIVER BASIN, MT	127	ST. CLOUD, MN	$18.59
95	POWDER RIVER BASIN, MT	128	LA CROSSE, WI	$15.26
95	POWDER RIVER BASIN, MT	129	DULUTH, MN	$10.79
95	POWDER RIVER BASIN, MT	130	FARGO, ND	$11.24
95	POWDER RIVER BASIN, MT	131	MINNEAPOLIS, MN	$19.02
95	POWDER RIVER BASIN, MT	132	THIEF RIVER FALLS,MN	$15.90
95	POWDER RIVER BASIN, MT	133	WILLMAR, MN	$16.45
95	POWDER RIVER BASIN, MT	139	SPRINGFIELD, MO	$8.73
95	POWDER RIVER BASIN, MT	140	BILLINGS, MT	$6.68
95	POWDER RIVER BASIN, MT	141	GREAT FALLS, MT	$6.78
95	POWDER RIVER BASIN, MT	142	HELENA, MT	$7.93
95	POWDER RIVER BASIN, MT	143	MILES CITY, MT	$9.12
95	POWDER RIVER BASIN, MT	145	LINCOLN, NE	$19.02
95	POWDER RIVER BASIN, MT	148	RENO, NV	$32.67
95	POWDER RIVER BASIN, MT	153	EL PASO, TX	$15.88
95	POWDER RIVER BASIN, MT	156	SOCORRO NM	$18.85
95	POWDER RIVER BASIN, MT	172	BISMARK, ND	$12.08
95	POWDER RIVER BASIN, MT	184	OKLAHOMA CITY, OK	$18.15
95	POWDER RIVER BASIN, MT	185	ENID, OK	$17.11
95	POWDER RIVER BASIN, MT	186	TULSA, OK	$16.28
95	POWDER RIVER BASIN, MT	187	BOISE CITY, OK	$15.41
95	POWDER RIVER BASIN, MT	188	MCALESTER, OK	$18.66
95	POWDER RIVER BASIN, MT	191	PENDLETON, OR	$17.68
95	POWDER RIVER BASIN, MT	205	RAPID CITY, SD	$15.77
95	POWDER RIVER BASIN, MT	206	PIERRE, SD	$11.13
95	POWDER RIVER BASIN, MT	211	AMARILLO, TX	$15.39
95	POWDER RIVER BASIN, MT	219	MORGAN, UT	$14.10
95	POWDER RIVER BASIN, MT	220	SALT LAKE CITY, UT	$14.25
95	POWDER RIVER BASIN, MT	227	WENATCHEE, WA	$17.70
95	POWDER RIVER BASIN, MT	230	YAKIMA, WA	$18.30
95	POWDER RIVER BASIN, MT	239	MILWAUKEE, WI	$21.20
95	POWDER RIVER BASIN, MT	241	CASPER, WY	$9.12
95	POWDER RIVER BASIN, MT	242	CHEYENNE, WY	$16.64
96	POWDER RIVER BASIN, WY	16	LITTLE ROCK, AR	$17.38
96	POWDER RIVER BASIN, WY	17	FT. SMITH, AR	$15.18
96	POWDER RIVER BASIN, WY	18	MEMPHIS, TN	$26.56
96	POWDER RIVER BASIN, WY	19	MONROE, LA	$19.95
96	POWDER RIVER BASIN, WY	20	JONESBORO, AR	$17.21
96	POWDER RIVER BASIN, WY	21	CLARKSVILLE, AR	$15.98
96	POWDER RIVER BASIN, WY	22	SHREVEPORT, LA	$18.66
96	POWDER RIVER BASIN, WY	34	LA JUNTA, CO	$16.92
96	POWDER RIVER BASIN, WY	35	GRAND JUNCTION, CO	$18.32
96	POWDER RIVER BASIN, WY	36	DENVER, CO	$10.79
96	POWDER RIVER BASIN, WY	37	GREELEY, CO	$14.06
96	POWDER RIVER BASIN, WY	38	PUEBLO, CO	$7.99
96	POWDER RIVER BASIN, WY	39	ALAMOSA, CO	$17.87
96	POWDER RIVER BASIN, WY	40	STEAMBOAT SPRINGS,CO	$17.11
96	POWDER RIVER BASIN, WY	61	POCATELLO, ID	$18.30
96	POWDER RIVER BASIN, WY	62	SPOKANE, WA	$17.85
96	POWDER RIVER BASIN, WY	65	PEORIA, IL	$14.48
96	POWDER RIVER BASIN, WY	66	DANVILLE, IL	$25.10
96	POWDER RIVER BASIN, WY	67	CHICAGO, IL	$24.36
96	POWDER RIVER BASIN, WY	68	DUBUQUE, IA	$20.61
96	POWDER RIVER BASIN, WY	69	DAVENPORT, IA	$21.05
96	POWDER RIVER BASIN, WY	70	ST. LOUIS, MO	$23.85
96	POWDER RIVER BASIN, WY	71	LASALLE, IL	$23.51
96	POWDER RIVER BASIN, WY	72	PADUCAH, KY	$26.20
96	POWDER RIVER BASIN, WY	73	ROCKFORD, IL	$23.26
96	POWDER RIVER BASIN, WY	74	MARION, IL	$25.31
96	POWDER RIVER BASIN, WY	75	SPRINGFIELD, IL	$23.43
96	POWDER RIVER BASIN, WY	78	LOUISVILLE, KY	$22.18
96	POWDER RIVER BASIN, WY	79	CINCINNATI, OH	$25.65
96	POWDER RIVER BASIN, WY	80	INDIANAPOLIS, IN	$26.33

Table F5. Transport rates for coal shipments by unit train—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
96	POWDER RIVER BASIN, WY	81	FT. WAYNE, IN	$26.42
96	POWDER RIVER BASIN, WY	85	OMAHA, NE	$14.61
96	POWDER RIVER BASIN, WY	86	SIOUX CITY, IA	$8.35
96	POWDER RIVER BASIN, WY	87	SIOUX FALLS, SD	$16.71
96	POWDER RIVER BASIN, WY	88	WATERLOO, IA	$19.29
96	POWDER RIVER BASIN, WY	89	MASON CITY, IA	$18.72
96	POWDER RIVER BASIN, WY	90	SPENCER, IA	$17.28
96	POWDER RIVER BASIN, WY	91	OTTUMWA, IA	$19.84
96	POWDER RIVER BASIN, WY	92	DES MOINES, IA	$11.94
96	POWDER RIVER BASIN, WY	93	CRESTON, IA	$18.21
96	POWDER RIVER BASIN, WY	94	KANSAS CITY, MO	$12.53
96	POWDER RIVER BASIN, WY	95	SALINA, KS	$17.57
96	POWDER RIVER BASIN, WY	96	TOPEKA, KS	$17.94
96	POWDER RIVER BASIN, WY	97	OAKLEY, KS	$17.91
96	POWDER RIVER BASIN, WY	98	WICHITA, KS	$18.68
96	POWDER RIVER BASIN, WY	99	PITTSBURG, KS	$20.08
96	POWDER RIVER BASIN, WY	100	DODGE CITY, KS	$19.80
96	POWDER RIVER BASIN, WY	106	NEW ORLEANS, LA	$24.34
96	POWDER RIVER BASIN, WY	122	GRAND RAPIDS, MI	$17.96
96	POWDER RIVER BASIN, WY	123	DETROIT, MI	$21.41
96	POWDER RIVER BASIN, WY	124	TOLEDO, OH	$27.56
96	POWDER RIVER BASIN, WY	126	MARQUETTE, MI	$19.65
96	POWDER RIVER BASIN, WY	127	ST. CLOUD, MN	$20.56
96	POWDER RIVER BASIN, WY	128	LA CROSSE, WI	$14.31
96	POWDER RIVER BASIN, WY	129	DULUTH, MN	$13.53
96	POWDER RIVER BASIN, WY	130	FARGO, ND	$18.72
96	POWDER RIVER BASIN, WY	131	MINNEAPOLIS, MN	$20.92
96	POWDER RIVER BASIN, WY	132	THIEF RIVER FALLS,MN	$20.35
96	POWDER RIVER BASIN, WY	133	WILLMAR, MN	$18.42
96	POWDER RIVER BASIN, WY	137	JEFFERSON CITY, MO	$24.34
96	POWDER RIVER BASIN, WY	138	CAPE GIRARDEAU, MO	$21.26
96	POWDER RIVER BASIN, WY	139	SPRINGFIELD, MO	$11.17
96	POWDER RIVER BASIN, WY	140	BILLINGS, MT	$14.54
96	POWDER RIVER BASIN, WY	141	GREAT FALLS, MT	$14.54
96	POWDER RIVER BASIN, WY	142	HELENA, MT	$12.91
96	POWDER RIVER BASIN, WY	143	MILES CITY, MT	$16.22
96	POWDER RIVER BASIN, WY	144	MISSOULA, MT	$16.18
96	POWDER RIVER BASIN, WY	145	LINCOLN, NE	$14.82
96	POWDER RIVER BASIN, WY	146	GRAND ISLAND, NE	$24.42
96	POWDER RIVER BASIN, WY	148	RENO, NV	$33.60
96	POWDER RIVER BASIN, WY	153	EL PASO, TX	$12.13
96	POWDER RIVER BASIN, WY	154	LAS VEGAS, NM	$16.73
96	POWDER RIVER BASIN, WY	155	CLOVIS, NM	$17.21
96	POWDER RIVER BASIN, WY	156	SOCORRO NM	$15.12
96	POWDER RIVER BASIN, WY	157	SANTE FE, NM	$25.02
96	POWDER RIVER BASIN, WY	172	BISMARK, ND	$17.09
96	POWDER RIVER BASIN, WY	174	CLEVELAND, OH	$29.04
96	POWDER RIVER BASIN, WY	176	COLUMBUS, OH	$22.24
96	POWDER RIVER BASIN, WY	184	OKLAHOMA CITY, OK	$13.95
96	POWDER RIVER BASIN, WY	185	ENID, OK	$12.89
96	POWDER RIVER BASIN, WY	186	TULSA, OK	$13.59
96	POWDER RIVER BASIN, WY	187	BOISE CITY, OK	$11.66
96	POWDER RIVER BASIN, WY	188	MCALESTER, OK	$15.09
96	POWDER RIVER BASIN, WY	189	LAWTON, OK	$14.95
96	POWDER RIVER BASIN, WY	205	RAPID CITY, SD	$11.58
96	POWDER RIVER BASIN, WY	206	PIERRE, SD	$14.01
96	POWDER RIVER BASIN, WY	210	WICHITA, FALLS, TX	$15.98
96	POWDER RIVER BASIN, WY	211	AMARILLO, TX	$11.66
96	POWDER RIVER BASIN, WY	212	AUSTIN, TX	$19.53
96	POWDER RIVER BASIN, WY	213	LAREDO, TX	$22.87
96	POWDER RIVER BASIN, WY	214	CORPUS CHRISTI, TX	$22.49
96	POWDER RIVER BASIN, WY	215	DALLAS, TX	$17.21
96	POWDER RIVER BASIN, WY	216	HOUSTON, TX	$20.48
96	POWDER RIVER BASIN, WY	217	SAN ANTONIO, TX	$20.67
96	POWDER RIVER BASIN, WY	218	SAN ANGELO, TX	$18.00
96	POWDER RIVER BASIN, WY	219	MORGAN, UT	$16.30
96	POWDER RIVER BASIN, WY	220	SALT LAKE CITY, UT	$16.68
96	POWDER RIVER BASIN, WY	239	MILWAUKEE, WI	$21.20
96	POWDER RIVER BASIN, WY	241	CASPER, WY	$12.55
96	POWDER RIVER BASIN, WY	242	CHEYENNE, WY	$13.82
96	POWDER RIVER BASIN, WY	243	ROCK SPRINGS, WY	$17.96
97	FORT UNION, MT	38	PUEBLO, CO	$15.37
97	FORT UNION, MT	65	PEORIA, IL	$15.37
97	FORT UNION, MT	85	OMAHA, NE	$14.20
97	FORT UNION, MT	86	SIOUX CITY, IA	$7.40
97	FORT UNION, MT	87	SIOUX FALLS, SD	$13.91
97	FORT UNION, MT	94	KANSAS CITY, MO	$12.78
97	FORT UNION, MT	122	GRAND RAPIDS, MI	$16.11
97	FORT UNION, MT	126	MARQUETTE, MI	$13.00
97	FORT UNION, MT	127	ST. CLOUD, MN	$14.59
97	FORT UNION, MT	128	LA CROSSE, WI	$12.00
97	FORT UNION, MT	129	DULUTH, MN	$11.02
97	FORT UNION, MT	130	FARGO, ND	$10.85
97	FORT UNION, MT	132	THIEF RIVER FALLS,MN	$11.15
97	FORT UNION, MT	133	WILLMAR, MN	$13.04
97	FORT UNION, MT	139	SPRINGFIELD, MO	$9.07
97	FORT UNION, MT	140	BILLINGS, MT	$11.24
97	FORT UNION, MT	141	GREAT FALLS, MT	$12.19
97	FORT UNION, MT	142	HELENA, MT	$6.97
97	FORT UNION, MT	143	MILES CITY, MT	$13.91
97	FORT UNION, MT	148	RENO, NV	$29.09
97	FORT UNION, MT	172	BISMARK, ND	$8.90
97	FORT UNION, MT	186	TULSA, OK	$18.02

Table F5. Transport rates for coal shipments by unit train—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
97	FORT UNION, MT	206	PIERRE, SD	$10.60
97	FORT UNION, MT	219	MORGAN, UT	$14.44
97	FORT UNION, MT	220	SALT LAKE CITY, UT	$14.59
97	FORT UNION, MT	241	CASPER, WY	$13.80
98	FORT UNION, ND	20	JONESBORO, AR	$14.48
98	FORT UNION, ND	21	CLARKSVILLE, AR	$13.84
98	FORT UNION, ND	36	DENVER, CO	$14.46
98	FORT UNION, ND	38	PUEBLO, CO	$11.66
98	FORT UNION, ND	65	PEORIA, IL	$12.93
98	FORT UNION, ND	85	OMAHA, NE	$10.96
98	FORT UNION, ND	86	SIOUX CITY, IA	$10.39
98	FORT UNION, ND	87	SIOUX FALLS, SD	$10.66
98	FORT UNION, ND	88	WATERLOO, IA	$14.29
98	FORT UNION, ND	89	MASON CITY, IA	$13.29
98	FORT UNION, ND	90	SPENCER, IA	$12.02
98	FORT UNION, ND	92	DES MOINES, IA	$13.99
98	FORT UNION, ND	93	CRESTON, IA	$14.52
98	FORT UNION, ND	94	KANSAS CITY, MO	$9.54
98	FORT UNION, ND	122	GRAND RAPIDS, MI	$11.38
98	FORT UNION, ND	126	MARQUETTE, MI	$10.56
98	FORT UNION, ND	127	ST. CLOUD, MN	$12.15
98	FORT UNION, ND	128	LA CROSSE, WI	$14.67
98	FORT UNION, ND	129	DULUTH, MN	$10.60
98	FORT UNION, ND	130	FARGO, ND	$8.42
98	FORT UNION, ND	131	MINNEAPOLIS, MN	$12.97
98	FORT UNION, ND	132	THIEF RIVER FALLS,MN	$10.07
98	FORT UNION, ND	133	WILLMAR, MN	$10.56
98	FORT UNION, ND	139	SPRINGFIELD, MO	$11.77
98	FORT UNION, ND	140	BILLINGS, MT	$14.80
98	FORT UNION, ND	142	HELENA, MT	$9.65
98	FORT UNION, ND	144	MISSOULA, MT	$13.65
98	FORT UNION, ND	145	LINCOLN, NE	$14.44
98	FORT UNION, ND	148	RENO, NV	$26.58
98	FORT UNION, ND	172	BISMARK, ND	$5.66
98	FORT UNION, ND	184	OKLAHOMA CITY, OK	$12.64
98	FORT UNION, ND	185	ENID, OK	$11.60
98	FORT UNION, ND	186	TULSA, OK	$10.68
98	FORT UNION, ND	187	BOISE CITY, OK	$14.06
98	FORT UNION, ND	188	MCALESTER, OK	$13.06
98	FORT UNION, ND	189	LAWTON, OK	$13.63
98	FORT UNION, ND	205	RAPID CITY, SD	$12.11
98	FORT UNION, ND	206	PIERRE, SD	$9.54
98	FORT UNION, ND	210	WICHITA, FALLS, TX	$14.69
99	DENVER BASIN, CO	36	DENVER, CO	$0.89
99	DENVER BASIN, CO	37	GREELEY, CO	$3.73
99	DENVER BASIN, CO	38	PUEBLO, CO	$3.54
99	DENVER BASIN, CO	86	SIOUX CITY, IA	$8.48
99	DENVER BASIN, CO	148	RENO, NV	$28.62
99	DENVER BASIN, CO	153	EL PASO, TX	$7.42
99	DENVER BASIN, CO	187	BOISE CITY, OK	$7.42
99	DENVER BASIN, CO	206	PIERRE, SD	$8.48
99	DENVER BASIN, CO	211	AMARILLO, TX	$7.42

Table F6. Transport rates for coal shipments by regular rail

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
3	BIRMINGHAM, AL	1	JACKSON, AL	$11.58
3	BIRMINGHAM, AL	2	COLUMBUS, GA	$10.66
3	BIRMINGHAM, AL	3	GADSDEN, AL	$10.09
3	BIRMINGHAM, AL	4	BIRMINGHAM, AL	$7.70
3	BIRMINGHAM, AL	5	MOBILE, AL	$14.23
3	BIRMINGHAM, AL	6	DOTHAN, AL	$9.92
3	BIRMINGHAM, AL	7	DECATUR, AL	$9.73
3	BIRMINGHAM, AL	50	W. PALM BEACH, FL	$41.40
3	BIRMINGHAM, AL	51	FT. MEYER, FL	$40.96
3	BIRMINGHAM, AL	55	CHATTANOOGA, TN	$11.36
3	BIRMINGHAM, AL	56	ATLANTA, GA	$8.48
3	BIRMINGHAM, AL	57	ATHENS, GA	$11.85
3	BIRMINGHAM, AL	105	BOWLING GREEN, KY	$12.27
3	BIRMINGHAM, AL	135	TUPELO, MS	$10.15
3	BIRMINGHAM, AL	202	SPARTANBURG, SC	$12.13
3	BIRMINGHAM, AL	208	NASHVILLE, TN	$11.91
4	JASPER, TN	2	COLUMBUS, GA	$12.70
4	JASPER, TN	3	GADSDEN, AL	$10.24
4	JASPER, TN	4	BIRMINGHAM, AL	$10.22
4	JASPER, TN	6	DOTHAN, AL	$12.61
4	JASPER, TN	7	DECATUR, AL	$8.27
4	JASPER, TN	50	W. PALM BEACH, FL	$27.01
4	JASPER, TN	51	FT. MEYER, FL	$26.25
4	JASPER, TN	54	MACON, GA	$12.70
4	JASPER, TN	55	CHATTANOOGA, TN	$8.93
4	JASPER, TN	56	ATLANTA, GA	$12.70
4	JASPER, TN	57	ATHENS, GA	$12.70
4	JASPER, TN	59	ALBANY, GA	$12.70
4	JASPER, TN	135	TUPELO, MS	$10.30
4	JASPER, TN	137	JEFFERSON CITY, MO	$13.02
4	JASPER, TN	164	OLEAN, NY	$12.44
4	JASPER, TN	166	RALEIGH, NC	$12.44
4	JASPER, TN	171	ASHEVILLE, NC	$11.77
4	JASPER, TN	207	KNOXVILLE, TN	$9.22
4	JASPER, TN	208	NASHVILLE, TN	$8.16
7	OAK RIDGE, TN	4	BIRMINGHAM, AL	$15.88
7	OAK RIDGE, TN	5	MOBILE, AL	$32.14
7	OAK RIDGE, TN	7	DECATUR, AL	$11.58
7	OAK RIDGE, TN	50	W. PALM BEACH, FL	$37.25
7	OAK RIDGE, TN	51	FT. MEYER, FL	$39.01
7	OAK RIDGE, TN	54	MACON, GA	$11.89
7	OAK RIDGE, TN	55	CHATTANOOGA, TN	$9.16
7	OAK RIDGE, TN	56	ATLANTA, GA	$13.02
7	OAK RIDGE, TN	57	ATHENS, GA	$11.87
7	OAK RIDGE, TN	58	SAVANNAH, GA	$24.38
7	OAK RIDGE, TN	78	LOUISVILLE, KY	$12.25
7	OAK RIDGE, TN	101	HAZARD, KY	$11.70
7	OAK RIDGE, TN	102	LEXINGTON, KY	$11.70
7	OAK RIDGE, TN	122	GRAND RAPIDS, MI	$27.35
7	OAK RIDGE, TN	164	OLEAN, NY	$11.62
7	OAK RIDGE, TN	166	RALEIGH, NC	$11.60
7	OAK RIDGE, TN	167	CHARLOTTE, NC	$31.27
7	OAK RIDGE, TN	170	WILMINGTON, NC	$35.13
7	OAK RIDGE, TN	171	ASHEVILLE, NC	$10.26
7	OAK RIDGE, TN	201	FLORENCE, SC	$20.33
7	OAK RIDGE, TN	202	SPARTANBURG, SC	$11.64
7	OAK RIDGE, TN	203	GREENWOOD, SC	$12.89
7	OAK RIDGE, TN	204	GEORGETOWN, SC	$18.04
7	OAK RIDGE, TN	207	KNOXVILLE, TN	$12.91
7	OAK RIDGE, TN	208	NASHVILLE, TN	$10.37
8	LEBANON, VA	1	JACKSON, AL	$18.47
8	LEBANON, VA	2	COLUMBUS, GA	$17.68
8	LEBANON, VA	3	GADSDEN, AL	$16.71
8	LEBANON, VA	4	BIRMINGHAM, AL	$16.68
8	LEBANON, VA	5	MOBILE, AL	$18.25
8	LEBANON, VA	6	DOTHAN, AL	$17.57
8	LEBANON, VA	7	DECATUR, AL	$16.47
8	LEBANON, VA	18	MEMPHIS, TN	$18.47
8	LEBANON, VA	20	JONESBORO, AK	$19.59
8	LEBANON, VA	41	NORWICH, CT	$22.26
8	LEBANON, VA	42	HARTFORD, CT	$22.26
8	LEBANON, VA	44	TORRINGTON, CT	$22.26
8	LEBANON, VA	45	PHILADEPHIA, PA	$17.81
8	LEBANON, VA	46	DOVER, DE	$18.85
8	LEBANON, VA	47	WASHINGTON, DC	$17.02
8	LEBANON, VA	48	ORLANDO, FL	$19.19
8	LEBANON, VA	49	JACKSONVILLE, FL	$17.91
8	LEBANON, VA	50	W. PALM BEACH, FL	$19.57
8	LEBANON, VA	51	FT. MEYER, FL	$19.57
8	LEBANON, VA	52	TAMPA, FL	$19.21
8	LEBANON, VA	53	AUGUSTA, GA	$16.79
8	LEBANON, VA	54	MACON, GA	$16.79
8	LEBANON, VA	55	CHATTANOOGA, TN	$8.54
8	LEBANON, VA	56	ATLANTA, GA	$17.30
8	LEBANON, VA	57	ATHENS, GA	$17.30
8	LEBANON, VA	58	SAVANNAH, GA	$17.30
8	LEBANON, VA	59	ALBANY, GA	$17.68
8	LEBANON, VA	65	PEORIA, IL	$19.14
8	LEBANON, VA	66	DANVILLE, IL	$18.66
8	LEBANON, VA	67	CHICAGO, IL	$17.19
8	LEBANON, VA	70	ST. LOUIS, MO	$19.19
8	LEBANON, VA	71	LASALLE, IL	$19.44
8	LEBANON, VA	72	PADUCAH, KY	$17.38

Table F6. Transport rates for coal shipments by regular rail—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
8	LEBANON, VA	74	MARION, IL	$19.55
8	LEBANON, VA	75	SPRINGFIELD, IL	$19.55
8	LEBANON, VA	76	MUNCIE, IN	$17.36
8	LEBANON, VA	77	EVANSVILLE, IN	$17.32
8	LEBANON, VA	78	LOUISVILLE, KY	$16.43
8	LEBANON, VA	79	CINCINNATI, OH	$17.68
8	LEBANON, VA	80	INDIANAPOLIS, IN	$16.98
8	LEBANON, VA	81	FT. WAYNE, IN	$18.23
8	LEBANON, VA	82	SOUTH BEND, IN	$19.08
8	LEBANON, VA	83	BLOOMINGTON, IN	$17.30
8	LEBANON, VA	84	TERRA HAUTE, IN	$18.19
8	LEBANON, VA	101	HAZARD, KY	$16.96
8	LEBANON, VA	102	LEXINGTON, KY	$13.99
8	LEBANON, VA	103	HUNTINGTON, WV	$12.93
8	LEBANON, VA	104	ELIZABETHTOWN, KY	$17.83
8	LEBANON, VA	105	BOWLING GREEN, KY	$16.96
8	LEBANON, VA	106	NEW ORLEANS, LA	$19.59
8	LEBANON, VA	107	LEWISTON, ME	$24.91
8	LEBANON, VA	112	FREDERICK, MD	$17.49
8	LEBANON, VA	113	HAGERSTOWN, MD	$18.23
8	LEBANON, VA	114	SALISBURY, MD	$17.49
8	LEBANON, VA	115	BALTIMORE, MD	$17.49
8	LEBANON, VA	116	BRANDYWINE, MD	$17.36
8	LEBANON, VA	122	GRAND RAPIDS, MI	$20.10
8	LEBANON, VA	123	DETROIT, MI	$18.27
8	LEBANON, VA	124	TOLEDO, OH	$17.45
8	LEBANON, VA	125	KALAMAZOO, MI	$19.29
8	LEBANON, VA	134	GREENVILLE, MS	$18.53
8	LEBANON, VA	135	TUPELO, MS	$16.77
8	LEBANON, VA	137	JEFFERSON CITY, MO	$18.72
8	LEBANON, VA	149	PLYMOUTH, NH	$18.23
8	LEBANON, VA	150	ATLANTIC CITY, NJ	$19.19
8	LEBANON, VA	164	OLEAN, NY	$8.59
8	LEBANON, VA	165	HICKORY, NC	$15.31
8	LEBANON, VA	166	RALEIGH, NC	$8.88
8	LEBANON, VA	167	CHARLOTTE, NC	$17.21
8	LEBANON, VA	168	ELIZABETH CITY, NC	$12.51
8	LEBANON, VA	169	FAYETTEVILLE, NC	$16.54
8	LEBANON, VA	171	ASHEVILLE, NC	$7.06
8	LEBANON, VA	173	DAYTON, OH	$17.36
8	LEBANON, VA	174	CLEVELAND, OH	$17.98
8	LEBANON, VA	175	MANSFIELD, OH	$18.34
8	LEBANON, VA	176	COLUMBUS, OH	$16.54
8	LEBANON, VA	177	LIMA, OH	$17.34
8	LEBANON, VA	178	DUBOIS, PA	$19.59
8	LEBANON, VA	179	PARKERSBURG, WV	$16.62
8	LEBANON, VA	180	SANDUSKY, OH	$17.49
8	LEBANON, VA	181	WHEELING, WV	$18.34
8	LEBANON, VA	182	CHILLICOTHE, OH	$16.68
8	LEBANON, VA	183	ZANESVILLE, OH	$16.66
8	LEBANON, VA	195	ALTOONA, PA	$19.36
8	LEBANON, VA	196	HARRISBURG, PA	$19.21
8	LEBANON, VA	197	PITTSBURGH, PA	$17.94
8	LEBANON, VA	198	SUMTER, SC	$17.83
8	LEBANON, VA	199	CHARLESTON, SC	$16.64
8	LEBANON, VA	200	COLUMBIA, SC	$16.64
8	LEBANON, VA	201	FLORENCE, SC	$16.64
8	LEBANON, VA	202	SPARTANBURG, SC	$9.09
8	LEBANON, VA	203	GREENWOOD, SC	$12.30
8	LEBANON, VA	204	GEORGETOWN, SC	$16.64
8	LEBANON, VA	207	KNOXVILLE, TN	$5.26
8	LEBANON, VA	208	NASHVILLE, TN	$16.75
8	LEBANON, VA	209	JACKSON, TN	$19.59
8	LEBANON, VA	222	LYNCHBURG, VA	$8.52
8	LEBANON, VA	223	NORFOLK, VA	$13.55
8	LEBANON, VA	224	FREDERICKSBURG, VA	$17.13
8	LEBANON, VA	225	RICHMOND, VA	$17.60
8	LEBANON, VA	226	ROANOKE, VA	$8.93
8	LEBANON, VA	231	ELKINS, WV	$18.72
8	LEBANON, VA	232	GASSAWAY, WV	$6.30
8	LEBANON, VA	233	MARTINSBURG, WV	$17.83
8	LEBANON, VA	234	CHARLESTON, WV	$12.72
8	LEBANON, VA	235	CLARKSBURG, WV	$17.51
8	LEBANON, VA	236	BECKLEY, WV	$10.18
9	PIKEVILLE, KY	1	JACKSON, AL	$18.80
9	PIKEVILLE, KY	2	COLUMBUS, GA	$18.02
9	PIKEVILLE, KY	3	GADSDEN, AL	$16.01
9	PIKEVILLE, KY	4	BIRMINGHAM, AL	$19.59
9	PIKEVILLE, KY	5	MOBILE, AL	$17.77
9	PIKEVILLE, KY	6	DOTHAN, AL	$17.91
9	PIKEVILLE, KY	7	DECATUR, AL	$16.71
9	PIKEVILLE, KY	16	LITTLE ROCK, AR	$19.95
9	PIKEVILLE, KY	17	FT. SMITH, AR	$20.84
9	PIKEVILLE, KY	18	MEMPHIS, TN	$17.62
9	PIKEVILLE, KY	19	MONROE, LA	$19.95
9	PIKEVILLE, KY	20	JONESBORO, AR	$18.76
9	PIKEVILLE, KY	21	CLARKSVILLE, AR	$19.95
9	PIKEVILLE, KY	22	SHREVEPORT, LA	$20.84
9	PIKEVILLE, KY	41	NORWICH, CT	$21.71
9	PIKEVILLE, KY	42	HARTFORD, CT	$21.71
9	PIKEVILLE, KY	43	NEW YORK, NY	$19.61
9	PIKEVILLE, KY	44	TORRINGTON, CT	$21.71

Table F6. Transport rates for coal shipments by regular rail—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
9	PIKEVILLE, KY	45	PHILADEPHIA, PA	$17.60
9	PIKEVILLE, KY	46	DOVER, DE	$19.06
9	PIKEVILLE, KY	47	WASHINGTON, DC	$16.43
9	PIKEVILLE, KY	48	ORLANDO, FL	$19.53
9	PIKEVILLE, KY	49	JACKSONVILLE, FL	$19.06
9	PIKEVILLE, KY	50	W. PALM BEACH, FL	$19.91
9	PIKEVILLE, KY	51	FT. MEYER, FL	$19.91
9	PIKEVILLE, KY	52	TAMPA, FL	$19.55
9	PIKEVILLE, KY	53	AUGUSTA, GA	$16.47
9	PIKEVILLE, KY	54	MACON, GA	$17.53
9	PIKEVILLE, KY	55	CHATTANOOGA, TN	$16.56
9	PIKEVILLE, KY	56	ATLANTA, GA	$16.13
9	PIKEVILLE, KY	57	ATHENS, GA	$17.36
9	PIKEVILLE, KY	58	SAVANNAH, GA	$17.43
9	PIKEVILLE, KY	59	ALBANY, GA	$17.55
9	PIKEVILLE, KY	65	PEORIA, IL	$17.70
9	PIKEVILLE, KY	66	DANVILLE, IL	$17.24
9	PIKEVILLE, KY	67	CHICAGO, IL	$11.38
9	PIKEVILLE, KY	68	DUBUQUE, IA	$18.91
9	PIKEVILLE, KY	69	DAVENPORT, IA	$18.91
9	PIKEVILLE, KY	70	ST. LOUIS, MO	$17.04
9	PIKEVILLE, KY	71	LASALLE, IL	$17.96
9	PIKEVILLE, KY	72	PADUCAH, KY	$15.62
9	PIKEVILLE, KY	73	ROCKFORD, IL	$18.85
9	PIKEVILLE, KY	74	MARION, IL	$18.10
9	PIKEVILLE, KY	75	SPRINGFIELD, IL	$17.81
9	PIKEVILLE, KY	76	MUNCIE, IN	$15.54
9	PIKEVILLE, KY	77	EVANSVILLE, IN	$15.98
9	PIKEVILLE, KY	78	LOUISVILLE, KY	$14.84
9	PIKEVILLE, KY	79	CINCINNATI, OH	$11.87
9	PIKEVILLE, KY	80	INDIANAPOLIS, IN	$9.18
9	PIKEVILLE, KY	81	FT. WAYNE, IN	$15.84
9	PIKEVILLE, KY	82	SOUTH BEND, IN	$16.68
9	PIKEVILLE, KY	83	BLOOMINGTON, IN	$15.39
9	PIKEVILLE, KY	84	TERRA HAUTE, IN	$15.67
9	PIKEVILLE, KY	88	WATERLOO, IA	$19.78
9	PIKEVILLE, KY	89	MASON CITY, IA	$19.80
9	PIKEVILLE, KY	90	SPENCER, IA	$20.67
9	PIKEVILLE, KY	91	OTTUMWA, IA	$19.78
9	PIKEVILLE, KY	92	DES MOINES, IA	$19.80
9	PIKEVILLE, KY	93	CRESTON, IA	$19.80
9	PIKEVILLE, KY	94	KANSAS CITY, MO	$20.84
9	PIKEVILLE, KY	96	TOPEKA, KS	$19.61
9	PIKEVILLE, KY	99	PITTSBURG, KS	$19.95
9	PIKEVILLE, KY	101	HAZARD, KY	$8.82
9	PIKEVILLE, KY	102	LEXINGTON, KY	$11.02
9	PIKEVILLE, KY	103	HUNTINGTON, WV	$5.85
9	PIKEVILLE, KY	104	ELIZABETHTOWN, KY	$14.84
9	PIKEVILLE, KY	105	BOWLING GREEN, KY	$16.56
9	PIKEVILLE, KY	106	NEW ORLEANS, LA	$19.95
9	PIKEVILLE, KY	107	LEWISTON, ME	$24.38
9	PIKEVILLE, KY	112	FREDERICK, MD	$17.70
9	PIKEVILLE, KY	113	HAGERSTOWN, MD	$15.90
9	PIKEVILLE, KY	114	SALISBURY, MD	$17.70
9	PIKEVILLE, KY	115	BALTIMORE, MD	$17.70
9	PIKEVILLE, KY	116	BRANDYWINE, MD	$16.81
9	PIKEVILLE, KY	117	PITTSFIELD, MA	$20.31
9	PIKEVILLE, KY	119	BOSTON, MA	$22.03
9	PIKEVILLE, KY	120	PROVIDENCE, RI	$23.38
9	PIKEVILLE, KY	122	GRAND RAPIDS, MI	$16.41
9	PIKEVILLE, KY	123	DETROIT, MI	$14.54
9	PIKEVILLE, KY	124	TOLEDO, OH	$10.71
9	PIKEVILLE, KY	125	KALAMAZOO, MI	$15.88
9	PIKEVILLE, KY	126	MARQUETTE, MI	$19.55
9	PIKEVILLE, KY	127	ST. CLOUD, MN	$20.52
9	PIKEVILLE, KY	131	MINNEAPOLIS, MN	$20.44
9	PIKEVILLE, KY	134	GREENVILLE, MS	$18.89
9	PIKEVILLE, KY	135	TUPELO, MS	$17.11
9	PIKEVILLE, KY	136	GREENSBORO, NC	$17.81
9	PIKEVILLE, KY	137	JEFFERSON CITY, MO	$17.77
9	PIKEVILLE, KY	138	CAPE GIRARDEAU, MO	$19.95
9	PIKEVILLE, KY	149	PLYMOUTH, NH	$18.59
9	PIKEVILLE, KY	150	ATLANTIC CITY, NJ	$18.63
9	PIKEVILLE, KY	159	BURLINGTON, VT	$18.91
9	PIKEVILLE, KY	161	ALBANY, NY	$18.76
9	PIKEVILLE, KY	162	BUFFALO, NY	$18.80
9	PIKEVILLE, KY	163	BINGHAMTON, NY	$18.91
9	PIKEVILLE, KY	164	OLEAN, NY	$15.96
9	PIKEVILLE, KY	165	HICKORY, NC	$16.32
9	PIKEVILLE, KY	166	RALEIGH, NC	$13.40
9	PIKEVILLE, KY	167	CHARLOTTE, NC	$16.64
9	PIKEVILLE, KY	168	ELIZABETH CITY, NC	$16.88
9	PIKEVILLE, KY	169	FAYETTEVILLE, NC	$16.60
9	PIKEVILLE, KY	170	WILMINGTON, NC	$17.51
9	PIKEVILLE, KY	171	ASHEVILLE, NC	$15.98
9	PIKEVILLE, KY	173	DAYTON, OH	$12.08
9	PIKEVILLE, KY	174	CLEVELAND, OH	$11.51
9	PIKEVILLE, KY	175	MANSFIELD, OH	$15.90
9	PIKEVILLE, KY	176	COLUMBUS, OH	$10.60
9	PIKEVILLE, KY	177	LIMA, OH	$14.63
9	PIKEVILLE, KY	178	DUBOIS, PA	$16.05
9	PIKEVILLE, KY	179	PARKERSBURG, WV	$14.84
9	PIKEVILLE, KY	180	SANDUSKY, OH	$11.74
9	PIKEVILLE, KY	181	WHEELING, WV	$16.03

Table F6. Transport rates for coal shipments by regular rail—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
9	PIKEVILLE, KY	182	CHILLICOTHE, OH	$7.50
9	PIKEVILLE, KY	183	ZANESVILLE, OH	$11.87
9	PIKEVILLE, KY	188	MCALESTER, OK	$20.84
9	PIKEVILLE, KY	195	ALTOONA, PA	$17.36
9	PIKEVILLE, KY	196	HARRISBURG, PA	$17.62
9	PIKEVILLE, KY	197	PITTSBURGH, PA	$14.39
9	PIKEVILLE, KY	198	SUMTER, SC	$18.17
9	PIKEVILLE, KY	199	CHARLESTON, SC	$17.85
9	PIKEVILLE, KY	200	COLUMBIA, SC	$16.94
9	PIKEVILLE, KY	201	FLORENCE, SC	$16.64
9	PIKEVILLE, KY	202	SPARTANBURG, SC	$15.79
9	PIKEVILLE, KY	203	GREENWOOD, SC	$17.26
9	PIKEVILLE, KY	204	GEORGETOWN, SC	$16.88
9	PIKEVILLE, KY	207	KNOXVILLE, TN	$12.21
9	PIKEVILLE, KY	208	NASHVILLE, TN	$15.71
9	PIKEVILLE, KY	209	JACKSON, TN	$18.74
9	PIKEVILLE, KY	222	LYNCHBURG, VA	$15.73
9	PIKEVILLE, KY	223	NORFOLK, VA	$18.44
9	PIKEVILLE, KY	224	FREDERICKSBURG, VA	$16.45
9	PIKEVILLE, KY	225	RICHMOND, VA	$16.98
9	PIKEVILLE, KY	226	ROANOKE, VA	$14.52
9	PIKEVILLE, KY	231	ELKINS, WV	$9.12
9	PIKEVILLE, KY	232	GASSAWAY, WV	$11.98
9	PIKEVILLE, KY	233	MARTINSBURG, WV	$17.30
9	PIKEVILLE, KY	234	CHARLESTON, WV	$9.14
9	PIKEVILLE, KY	235	CLARKSBURG, WV	$14.63
9	PIKEVILLE, KY	236	BECKLEY, WV	$10.22
9	PIKEVILLE, KY	237	GREEN BAY, WI	$20.84
9	PIKEVILLE, KY	238	WAUSAU, WI	$20.84
9	PIKEVILLE, KY	239	MILWAUKEE, WI	$19.89
9	PIKEVILLE, KY	240	MADISON, WI	$19.95
10	MIDDLESBORO, KY	1	JACKSON, AL	$16.98
10	MIDDLESBORO, KY	3	GADSDEN, AL	$14.80
10	MIDDLESBORO, KY	4	BIRMINGHAM, AL	$15.71
10	MIDDLESBORO, KY	7	DECATUR, AL	$9.20
10	MIDDLESBORO, KY	47	WASHINGTON, DC	$19.04
10	MIDDLESBORO, KY	50	W. PALM BEACH, FL	$20.35
10	MIDDLESBORO, KY	51	FT. MEYER, FL	$18.61
10	MIDDLESBORO, KY	52	TAMPA, FL	$17.96
10	MIDDLESBORO, KY	53	AUGUSTA, GA	$16.49
10	MIDDLESBORO, KY	54	MACON, GA	$16.51
10	MIDDLESBORO, KY	55	CHATTANOOGA, TN	$8.48
10	MIDDLESBORO, KY	56	ATLANTA, GA	$7.53
10	MIDDLESBORO, KY	57	ATHENS, GA	$8.48
10	MIDDLESBORO, KY	58	SAVANNAH, GA	$16.96
10	MIDDLESBORO, KY	59	ALBANY, GA	$17.24
10	MIDDLESBORO, KY	73	ROCKFORD, IL	$18.91
10	MIDDLESBORO, KY	78	LOUISVILLE, KY	$9.60
10	MIDDLESBORO, KY	101	HAZARD, KY	$8.73
10	MIDDLESBORO, KY	102	LEXINGTON, KY	$8.52
10	MIDDLESBORO, KY	103	HUNTINGTON, WV	$16.32
10	MIDDLESBORO, KY	104	ELIZABETHTOWN, KY	$7.04
10	MIDDLESBORO, KY	105	BOWLING GREEN, KY	$8.27
10	MIDDLESBORO, KY	122	GRAND RAPIDS, MI	$18.97
10	MIDDLESBORO, KY	124	TOLEDO, OH	$17.74
10	MIDDLESBORO, KY	125	KALAMAZOO, MI	$18.85
10	MIDDLESBORO, KY	162	BUFFALO, NY	$19.46
10	MIDDLESBORO, KY	164	OLEAN, NY	$8.99
10	MIDDLESBORO, KY	165	HICKORY, NC	$16.54
10	MIDDLESBORO, KY	166	RALEIGH, NC	$9.05
10	MIDDLESBORO, KY	167	CHARLOTTE, NC	$17.07
10	MIDDLESBORO, KY	171	ASHEVILLE, NC	$7.10
10	MIDDLESBORO, KY	199	CHARLESTON, SC	$16.37
10	MIDDLESBORO, KY	200	COLUMBIA, SC	$16.45
10	MIDDLESBORO, KY	201	FLORENCE, SC	$16.11
10	MIDDLESBORO, KY	202	SPARTANBURG, SC	$9.09
10	MIDDLESBORO, KY	203	GREENWOOD, SC	$6.64
10	MIDDLESBORO, KY	204	GEORGETOWN, SC	$16.11
10	MIDDLESBORO, KY	207	KNOXVILLE, TN	$8.29
10	MIDDLESBORO, KY	208	NASHVILLE, TN	$8.65
10	MIDDLESBORO, KY	223	NORFOLK, VA	$16.32
10	MIDDLESBORO, KY	225	RICHMOND, VA	$17.96
11	BEATTYVILLE, KY	52	TAMPA, FL	$19.08
11	BEATTYVILLE, KY	55	CHATTANOOGA, TN	$8.40
11	BEATTYVILLE, KY	72	PADUCAH, KY	$9.09
11	BEATTYVILLE, KY	77	EVANSVILLE, IN	$9.22
11	BEATTYVILLE, KY	78	LOUISVILLE, KY	$7.76
11	BEATTYVILLE, KY	79	CINCINNATI, OH	$5.55
11	BEATTYVILLE, KY	80	INDIANAPOLIS, IN	$9.22
11	BEATTYVILLE, KY	83	BLOOMINGTON, IN	$9.24
11	BEATTYVILLE, KY	101	HAZARD, KY	$8.84
11	BEATTYVILLE, KY	102	LEXINGTON, KY	$8.90
11	BEATTYVILLE, KY	103	HUNTINGTON, WV	$8.99
11	BEATTYVILLE, KY	104	ELIZABETHTOWN, KY	$5.24
11	BEATTYVILLE, KY	105	BOWLING GREEN, KY	$8.88
11	BEATTYVILLE, KY	137	JEFFERSON CITY, MO	$6.74
11	BEATTYVILLE, KY	173	DAYTON, OH	$9.14
11	BEATTYVILLE, KY	176	COLUMBUS, OH	$9.03
11	BEATTYVILLE, KY	177	LIMA, OH	$9.16
11	BEATTYVILLE, KY	179	PARKERSBURG, WV	$8.90
11	BEATTYVILLE, KY	182	CHILLICOTHE, OH	$8.80
11	BEATTYVILLE, KY	183	ZANESVILLE, OH	$8.42
11	BEATTYVILLE, KY	207	KNOXVILLE, TN	$8.65

Table F6. Transport rates for coal shipments by regular rail—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
11	BEATTYVILLE, KY	208	NASHVILLE, TN	$9.24
11	BEATTYVILLE, KY	232	GASSAWAY, WV	$6.74
11	BEATTYVILLE, KY	234	CHARLESTON, WV	$9.16
11	BEATTYVILLE, KY	236	BECKLEY, WV	$6.74
12	SALYERSVILLE, KY	5	MOBILE, AL	$17.83
12	SALYERSVILLE, KY	7	DECATUR, AL	$16.07
12	SALYERSVILLE, KY	55	CHATTANOOGA, TN	$8.82
12	SALYERSVILLE, KY	72	PADUCAH, KY	$12.72
12	SALYERSVILLE, KY	77	EVANSVILLE, IN	$9.22
12	SALYERSVILLE, KY	78	LOUISVILLE, KY	$7.70
12	SALYERSVILLE, KY	79	CINCINNATI, OH	$5.45
12	SALYERSVILLE, KY	101	HAZARD, KY	$8.84
12	SALYERSVILLE, KY	102	LEXINGTON, KY	$8.88
12	SALYERSVILLE, KY	103	HUNTINGTON, WV	$8.65
12	SALYERSVILLE, KY	104	ELIZABETHTOWN, KY	$11.02
12	SALYERSVILLE, KY	105	BOWLING GREEN, KY	$8.86
12	SALYERSVILLE, KY	107	LEWISTON, ME	$25.38
12	SALYERSVILLE, KY	122	GRAND RAPIDS, MI	$17.79
12	SALYERSVILLE, KY	124	TOLEDO, OH	$16.13
12	SALYERSVILLE, KY	137	JEFFERSON CITY, MO	$6.74
12	SALYERSVILLE, KY	166	RALEIGH, NC	$16.28
12	SALYERSVILLE, KY	176	COLUMBUS, OH	$9.01
12	SALYERSVILLE, KY	179	PARKERSBURG, WV	$8.90
12	SALYERSVILLE, KY	181	WHEELING, WV	$17.04
12	SALYERSVILLE, KY	182	CHILLICOTHE, OH	$8.78
12	SALYERSVILLE, KY	183	ZANESVILLE, OH	$8.42
12	SALYERSVILLE, KY	202	SPARTANBURG, SC	$15.73
12	SALYERSVILLE, KY	207	KNOXVILLE, TN	$8.80
12	SALYERSVILLE, KY	208	NASHVILLE, TN	$10.60
12	SALYERSVILLE, KY	232	GASSAWAY, WV	$6.74
12	SALYERSVILLE, KY	234	CHARLESTON, WV	$9.05
12	SALYERSVILLE, KY	236	BECKLEY, WV	$6.74
12	SALYERSVILLE, KY	237	GREEN BAY, WI	$20.08
13	PLEASANTVILLE, OH	5	MOBILE, AL	$20.10
13	PLEASANTVILLE, OH	76	MUNCIE, IN	$16.54
13	PLEASANTVILLE, OH	79	CINCINNATI, OH	$6.08
13	PLEASANTVILLE, OH	101	HAZARD, KY	$8.59
13	PLEASANTVILLE, OH	102	LEXINGTON, KY	$8.63
13	PLEASANTVILLE, OH	103	HUNTINGTON, WV	$7.14
13	PLEASANTVILLE, OH	107	LEWISTON, ME	$24.97
13	PLEASANTVILLE, OH	122	GRAND RAPIDS, MI	$5.72
13	PLEASANTVILLE, OH	123	DETROIT, MI	$9.31
13	PLEASANTVILLE, OH	124	TOLEDO, OH	$8.73
13	PLEASANTVILLE, OH	173	DAYTON, OH	$9.29
13	PLEASANTVILLE, OH	174	CLEVELAND, OH	$8.84
13	PLEASANTVILLE, OH	175	MANSFIELD, OH	$8.71
13	PLEASANTVILLE, OH	176	COLUMBUS, OH	$8.76
13	PLEASANTVILLE, OH	177	LIMA, OH	$9.35
13	PLEASANTVILLE, OH	179	PARKERSBURG, WV	$8.65
13	PLEASANTVILLE, OH	180	SANDUSKY, OH	$8.40
13	PLEASANTVILLE, OH	181	WHEELING, WV	$16.64
13	PLEASANTVILLE, OH	182	CHILLICOTHE, OH	$8.52
13	PLEASANTVILLE, OH	183	ZANESVILLE, OH	$8.16
13	PLEASANTVILLE, OH	208	NASHVILLE, TN	$18.25
13	PLEASANTVILLE, OH	232	GASSAWAY, WV	$4.96
13	PLEASANTVILLE, OH	233	MARTINSBURG, WV	$6.89
13	PLEASANTVILLE, OH	234	CHARLESTON, WV	$7.38
13	PLEASANTVILLE, OH	236	BECKLEY, WV	$4.96
14	CADIZ, OH	76	MUNCIE, IN	$17.17
14	CADIZ, OH	124	TOLEDO, OH	$18.66
14	CADIZ, OH	161	ALBANY, NY	$8.90
14	CADIZ, OH	163	BINGHAMTON, NY	$8.63
14	CADIZ, OH	174	CLEVELAND, OH	$7.87
14	CADIZ, OH	175	MANSFIELD, OH	$7.50
14	CADIZ, OH	176	COLUMBUS, OH	$16.09
14	CADIZ, OH	178	DUBOIS, PA	$7.19
14	CADIZ, OH	179	PARKERSBURG, WV	$16.15
14	CADIZ, OH	180	SANDUSKY, OH	$7.53
14	CADIZ, OH	181	WHEELING, WV	$16.98
14	CADIZ, OH	183	ZANESVILLE, OH	$16.43
14	CADIZ, OH	195	ALTOONA, PA	$7.29
14	CADIZ, OH	196	HARRISBURG, PA	$7.53
14	CADIZ, OH	231	ELKINS, WV	$3.75
14	CADIZ, OH	233	MARTINSBURG, WV	$7.19
14	CADIZ, OH	235	CLARKSBURG, WV	$14.63
15	YOUNGSTOWN, OH	68	DUBUQUE, IA	$8.78
15	YOUNGSTOWN, OH	73	ROCKFORD, IL	$8.82
15	YOUNGSTOWN, OH	76	MUNCIE, IN	$8.95
15	YOUNGSTOWN, OH	80	INDIANAPOLIS, IN	$9.01
15	YOUNGSTOWN, OH	83	BLOOMINGTON, IN	$9.03
15	YOUNGSTOWN, OH	84	TERRA HAUTE, IN	$9.12
15	YOUNGSTOWN, OH	101	HAZARD, KY	$7.21
15	YOUNGSTOWN, OH	103	HUNTINGTON, WV	$8.82
15	YOUNGSTOWN, OH	104	ELIZABETHTOWN, KY	$6.64
15	YOUNGSTOWN, OH	150	ATLANTIC CITY, NJ	$21.03
15	YOUNGSTOWN, OH	164	OLEAN, NY	$17.91
15	YOUNGSTOWN, OH	173	DAYTON, OH	$6.19
15	YOUNGSTOWN, OH	174	CLEVELAND, OH	$17.28
15	YOUNGSTOWN, OH	176	COLUMBUS, OH	$8.23
15	YOUNGSTOWN, OH	178	DUBOIS, PA	$19.42

Table F6. Transport rates for coal shipments by regular rail—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
15	YOUNGSTOWN, OH	179	PARKERSBURG, WV	$8.10
15	YOUNGSTOWN, OH	181	WHEELING, WV	$17.53
15	YOUNGSTOWN, OH	182	CHILLICOTHE, OH	$7.99
15	YOUNGSTOWN, OH	183	ZANESVILLE, OH	$7.61
15	YOUNGSTOWN, OH	231	ELKINS, WV	$3.58
15	YOUNGSTOWN, OH	232	GASSAWAY, WV	$6.64
15	YOUNGSTOWN, OH	234	CHARLESTON, WV	$9.05
15	YOUNGSTOWN, OH	235	CLARKSBURG, WV	$5.72
15	YOUNGSTOWN, OH	236	BECKLEY, WV	$6.64
15	YOUNGSTOWN, OH	238	WAUSAU, WI	$6.78
16	PITTSBURGH, PA	5	MOBILE, AL	$21.54
16	PITTSBURGH, PA	7	DECATUR, AL	$19.46
16	PITTSBURGH, PA	41	NORWICH, CT	$21.12
16	PITTSBURGH, PA	42	HARTFORD, CT	$21.12
16	PITTSBURGH, PA	43	NEW YORK, NY	$17.85
16	PITTSBURGH, PA	44	TORRINGTON, CT	$21.12
16	PITTSBURGH, PA	45	PHILADEPHIA, PA	$14.01
16	PITTSBURGH, PA	46	DOVER, DE	$17.51
16	PITTSBURGH, PA	47	WASHINGTON, DC	$15.90
16	PITTSBURGH, PA	50	W. PALM BEACH, FL	$27.43
16	PITTSBURGH, PA	51	FT. MEYER, FL	$22.32
16	PITTSBURGH, PA	59	ALBANY, GA	$20.44
16	PITTSBURGH, PA	67	CHICAGO, IL	$16.79
16	PITTSBURGH, PA	76	MUNCIE, IN	$16.45
16	PITTSBURGH, PA	77	EVANSVILLE, IN	$18.61
16	PITTSBURGH, PA	78	LOUISVILLE, KY	$17.87
16	PITTSBURGH, PA	79	CINCINNATI, OH	$18.30
16	PITTSBURGH, PA	80	INDIANAPOLIS, IN	$17.74
16	PITTSBURGH, PA	81	FT. WAYNE, IN	$17.17
16	PITTSBURGH, PA	83	BLOOMINGTON, IN	$17.72
16	PITTSBURGH, PA	84	TERRA HAUTE, IN	$17.94
16	PITTSBURGH, PA	101	HAZARD, KY	$17.28
16	PITTSBURGH, PA	102	LEXINGTON, KY	$17.24
16	PITTSBURGH, PA	103	HUNTINGTON, WV	$15.41
16	PITTSBURGH, PA	107	LEWISTON, ME	$22.90
16	PITTSBURGH, PA	112	FREDERICK, MD	$17.09
16	PITTSBURGH, PA	113	HAGERSTOWN, MD	$18.32
16	PITTSBURGH, PA	114	SALISBURY, MD	$16.18
16	PITTSBURGH, PA	115	BALTIMORE, MD	$16.13
16	PITTSBURGH, PA	116	BRANDYWINE, MD	$17.11
16	PITTSBURGH, PA	119	BOSTON, MA	$20.59
16	PITTSBURGH, PA	120	PROVIDENCE, RI	$22.01
16	PITTSBURGH, PA	121	MANCHESTER, NH	$21.01
16	PITTSBURGH, PA	122	GRAND RAPIDS, MI	$20.88
16	PITTSBURGH, PA	123	DETROIT, MI	$15.75
16	PITTSBURGH, PA	124	TOLEDO, OH	$26.29
16	PITTSBURGH, PA	125	KALAMAZOO, MI	$17.04
16	PITTSBURGH, PA	129	DULUTH, MN	$21.69
16	PITTSBURGH, PA	149	PLYMOUTH, NH	$17.98
16	PITTSBURGH, PA	150	ATLANTIC CITY, NJ	$18.06
16	PITTSBURGH, PA	151	SCRANTON, PA	$13.78
16	PITTSBURGH, PA	158	SYRACUSE, NY	$18.68
16	PITTSBURGH, PA	159	BURLINGTON, VT	$17.30
16	PITTSBURGH, PA	160	ROCHESTER, NY	$18.30
16	PITTSBURGH, PA	161	ALBANY, NY	$14.84
16	PITTSBURGH, PA	162	BUFFALO, NY	$11.17
16	PITTSBURGH, PA	163	BINGHAMTON, NY	$13.78
16	PITTSBURGH, PA	164	OLEAN, NY	$16.54
16	PITTSBURGH, PA	165	HICKORY, NC	$18.04
16	PITTSBURGH, PA	168	ELIZABETH CITY, NC	$17.87
16	PITTSBURGH, PA	169	FAYETTEVILLE, NC	$18.04
16	PITTSBURGH, PA	173	DAYTON, OH	$16.85
16	PITTSBURGH, PA	174	CLEVELAND, OH	$13.14
16	PITTSBURGH, PA	175	MANSFIELD, OH	$16.96
16	PITTSBURGH, PA	176	COLUMBUS, OH	$16.28
16	PITTSBURGH, PA	177	LIMA, OH	$15.09
16	PITTSBURGH, PA	178	DUBOIS, PA	$13.14
16	PITTSBURGH, PA	179	PARKERSBURG, WV	$15.14
16	PITTSBURGH, PA	180	SANDUSKY, OH	$7.70
16	PITTSBURGH, PA	181	WHEELING, WV	$16.96
16	PITTSBURGH, PA	182	CHILLICOTHE, OH	$16.41
16	PITTSBURGH, PA	183	ZANESVILLE, OH	$16.62
16	PITTSBURGH, PA	195	ALTOONA, PA	$11.77
16	PITTSBURGH, PA	196	HARRISBURG, PA	$15.37
16	PITTSBURGH, PA	197	PITTSBURGH, PA	$7.57
16	PITTSBURGH, PA	202	SPARTANBURG, SC	$18.04
16	PITTSBURGH, PA	208	NASHVILLE, TN	$19.00
16	PITTSBURGH, PA	222	LYNCHBURG, VA	$17.00
16	PITTSBURGH, PA	224	FREDERICKSBURG, VA	$17.11
16	PITTSBURGH, PA	226	ROANOKE, VA	$17.00
16	PITTSBURGH, PA	231	ELKINS, WV	$16.96
16	PITTSBURGH, PA	232	GASSAWAY, WV	$17.57
16	PITTSBURGH, PA	233	MARTINSBURG, WV	$16.96
16	PITTSBURGH, PA	234	CHARLESTON, WV	$16.22

Table F6. Transport rates for coal shipments by regular rail—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
16	PITTSBURGH, PA	235	CLARKSBURG, WV	$14.20
16	PITTSBURGH, PA	236	BECKLEY, WV	$17.57
17	KITTANNING, PA	2	COLUMBUS, GA	$19.33
17	KITTANNING, PA	3	GADSDEN, AL	$19.16
17	KITTANNING, PA	4	BIRMINGHAM, AL	$19.14
17	KITTANNING, PA	7	DECATUR, AL	$18.74
17	KITTANNING, PA	18	MEMPHIS, TN	$19.53
17	KITTANNING, PA	41	NORWICH, CT	$20.37
17	KITTANNING, PA	42	HARTFORD, CT	$20.48
17	KITTANNING, PA	43	NEW YORK, NY	$17.89
17	KITTANNING, PA	44	TORRINGTON, CT	$20.37
17	KITTANNING, PA	45	PHILADEPHIA, PA	$15.82
17	KITTANNING, PA	46	DOVER, DE	$16.54
17	KITTANNING, PA	47	WASHINGTON, DC	$15.60
17	KITTANNING, PA	53	AUGUSTA, GA	$19.69
17	KITTANNING, PA	54	MACON, GA	$19.21
17	KITTANNING, PA	55	CHATTANOOGA, TN	$18.27
17	KITTANNING, PA	56	ATLANTA, GA	$19.23
17	KITTANNING, PA	57	ATHENS, GA	$19.23
17	KITTANNING, PA	58	SAVANNAH, GA	$19.69
17	KITTANNING, PA	65	PEORIA, IL	$19.04
17	KITTANNING, PA	66	DANVILLE, IL	$18.55
17	KITTANNING, PA	67	CHICAGO, IL	$17.68
17	KITTANNING, PA	68	DUBUQUE, IA	$20.22
17	KITTANNING, PA	69	DAVENPORT, IA	$20.22
17	KITTANNING, PA	70	ST. LOUIS, MO	$19.36
17	KITTANNING, PA	71	LASALLE, IL	$19.31
17	KITTANNING, PA	72	PADUCAH, KY	$18.38
17	KITTANNING, PA	73	ROCKFORD, IL	$19.31
17	KITTANNING, PA	74	MARION, IL	$19.72
17	KITTANNING, PA	75	SPRINGFIELD, IL	$19.44
17	KITTANNING, PA	76	MUNCIE, IN	$16.64
17	KITTANNING, PA	77	EVANSVILLE, IN	$17.87
17	KITTANNING, PA	78	LOUISVILLE, KY	$17.13
17	KITTANNING, PA	79	CINCINNATI, OH	$17.55
17	KITTANNING, PA	80	INDIANAPOLIS, IN	$17.00
17	KITTANNING, PA	81	FT. WAYNE, IN	$16.43
17	KITTANNING, PA	82	SOUTH BEND, IN	$17.47
17	KITTANNING, PA	83	BLOOMINGTON, IN	$17.00
17	KITTANNING, PA	84	TERRA HAUTE, IN	$17.19
17	KITTANNING, PA	101	HAZARD, KY	$16.54
17	KITTANNING, PA	102	LEXINGTON, KY	$16.51
17	KITTANNING, PA	103	HUNTINGTON, WV	$15.60
17	KITTANNING, PA	107	LEWISTON, ME	$22.15
17	KITTANNING, PA	108	HOULTON, ME	$23.64
17	KITTANNING, PA	109	BANGOR, ME	$23.64
17	KITTANNING, PA	110	PORTLAND, ME	$22.15
17	KITTANNING, PA	111	GREENVILLE, ME	$23.64
17	KITTANNING, PA	112	FREDERICK, MD	$16.37
17	KITTANNING, PA	113	HAGERSTOWN, MD	$7.02
17	KITTANNING, PA	114	SALISBURY, MD	$16.22
17	KITTANNING, PA	115	BALTIMORE, MD	$16.26
17	KITTANNING, PA	116	BRANDYWINE, MD	$14.90
17	KITTANNING, PA	117	PITTSFIELD, MA	$18.42
17	KITTANNING, PA	118	WORCESTER, MA	$19.84
17	KITTANNING, PA	119	BOSTON, MA	$19.84
17	KITTANNING, PA	121	MANCHESTER, NH	$20.27
17	KITTANNING, PA	122	GRAND RAPIDS, MI	$17.32
17	KITTANNING, PA	123	DETROIT, MI	$16.62
17	KITTANNING, PA	124	TOLEDO, OH	$15.86
17	KITTANNING, PA	125	KALAMAZOO, MI	$17.41
17	KITTANNING, PA	126	MARQUETTE, MI	$19.10
17	KITTANNING, PA	129	DULUTH, MN	$20.95
17	KITTANNING, PA	134	GREENVILLE, MS	$20.20
17	KITTANNING, PA	135	TUPELO, MS	$19.23
17	KITTANNING, PA	149	PLYMOUTH, NH	$17.24
17	KITTANNING, PA	150	ATLANTIC CITY, NJ	$17.34
17	KITTANNING, PA	151	SCRANTON, PA	$23.32
17	KITTANNING, PA	158	SYRACUSE, NY	$18.13
17	KITTANNING, PA	159	BURLINGTON, VT	$17.55
17	KITTANNING, PA	160	ROCHESTER, NY	$17.96
17	KITTANNING, PA	161	ALBANY, NY	$9.16
17	KITTANNING, PA	162	BUFFALO, NY	$22.01
17	KITTANNING, PA	163	BINGHAMTON, NY	$8.84
17	KITTANNING, PA	164	OLEAN, NY	$19.82
17	KITTANNING, PA	165	HICKORY, NC	$17.30
17	KITTANNING, PA	166	RALEIGH, NC	$17.60
17	KITTANNING, PA	167	CHARLOTTE, NC	$18.02
17	KITTANNING, PA	168	ELIZABETH CITY, NC	$17.13
17	KITTANNING, PA	169	FAYETTEVILLE, NC	$17.32
17	KITTANNING, PA	171	ASHEVILLE, NC	$18.80
17	KITTANNING, PA	173	DAYTON, OH	$16.11
17	KITTANNING, PA	174	CLEVELAND, OH	$7.59
17	KITTANNING, PA	175	MANSFIELD, OH	$7.84

Table F6. Transport rates for coal shipments by regular rail—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
17	KITTANNING, PA	176	COLUMBUS, OH	$15.54
17	KITTANNING, PA	177	LIMA, OH	$15.48
17	KITTANNING, PA	178	DUBOIS, PA	$3.90
17	KITTANNING, PA	179	PARKERSBURG, WV	$15.75
17	KITTANNING, PA	180	SANDUSKY, OH	$6.53
17	KITTANNING, PA	181	WHEELING, WV	$6.85
17	KITTANNING, PA	182	CHILLICOTHE, OH	$15.69
17	KITTANNING, PA	183	ZANESVILLE, OH	$15.90
17	KITTANNING, PA	195	ALTOONA, PA	$2.44
17	KITTANNING, PA	196	HARRISBURG, PA	$3.99
17	KITTANNING, PA	197	PITTSBURGH, PA	$8.18
17	KITTANNING, PA	198	SUMTER, SC	$19.99
17	KITTANNING, PA	199	CHARLESTON, SC	$19.00
17	KITTANNING, PA	200	COLUMBIA, SC	$18.83
17	KITTANNING, PA	201	FLORENCE, SC	$18.97
17	KITTANNING, PA	202	SPARTANBURG, SC	$17.32
17	KITTANNING, PA	203	GREENWOOD, SC	$19.82
17	KITTANNING, PA	204	GEORGETOWN, SC	$19.00
17	KITTANNING, PA	207	KNOXVILLE, TN	$17.77
17	KITTANNING, PA	208	NASHVILLE, TN	$18.25
17	KITTANNING, PA	209	JACKSON, TN	$20.65
17	KITTANNING, PA	221	MONTPELIER, VT	$20.37
17	KITTANNING, PA	222	LYNCHBURG, VA	$16.26
17	KITTANNING, PA	223	NORFOLK, VA	$18.04
17	KITTANNING, PA	224	FREDERICKSBURG, VA	$16.37
17	KITTANNING, PA	225	RICHMOND, VA	$17.49
17	KITTANNING, PA	226	ROANOKE, VA	$16.26
17	KITTANNING, PA	231	ELKINS, WV	$3.10
17	KITTANNING, PA	232	GASSAWAY, WV	$16.83
17	KITTANNING, PA	233	MARTINSBURG, WV	$6.53
17	KITTANNING, PA	234	CHARLESTON, WV	$15.48
17	KITTANNING, PA	235	CLARKSBURG, WV	$6.19
17	KITTANNING, PA	236	BECKLEY, WV	$16.94
17	KITTANNING, PA	237	GREEN BAY, WI	$20.37
17	KITTANNING, PA	239	MILWAUKEE, WI	$19.63
17	KITTANNING, PA	240	MADISON, WI	$20.37
18	SHARON, PA	41	NORWICH, CT	$20.29
18	SHARON, PA	42	HARTFORD, CT	$20.29
18	SHARON, PA	44	TORRINGTON, CT	$20.29
18	SHARON, PA	45	PHILADEPHIA, PA	$18.15
18	SHARON, PA	47	WASHINGTON, DC	$10.09
18	SHARON, PA	73	ROCKFORD, IL	$19.42
18	SHARON, PA	76	MUNCIE, IN	$16.47
18	SHARON, PA	80	INDIANAPOLIS, IN	$16.43
18	SHARON, PA	81	FT. WAYNE, IN	$15.58
18	SHARON, PA	83	BLOOMINGTON, IN	$16.41
18	SHARON, PA	103	HUNTINGTON, WV	$15.71
18	SHARON, PA	113	HAGERSTOWN, MD	$8.01
18	SHARON, PA	116	BRANDYWINE, MD	$15.39
18	SHARON, PA	117	PITTSFIELD, MA	$19.06
18	SHARON, PA	120	PROVIDENCE, RI	$21.14
18	SHARON, PA	121	MANCHESTER, NH	$20.16
18	SHARON, PA	123	DETROIT, MI	$15.82
18	SHARON, PA	124	TOLEDO, OH	$9.79
18	SHARON, PA	149	PLYMOUTH, NH	$18.25
18	SHARON, PA	158	SYRACUSE, NY	$19.12
18	SHARON, PA	160	ROCHESTER, NY	$20.48
18	SHARON, PA	161	ALBANY, NY	$15.71
18	SHARON, PA	162	BUFFALO, NY	$17.66
18	SHARON, PA	163	BINGHAMTON, NY	$15.86
18	SHARON, PA	164	OLEAN, NY	$22.15
18	SHARON, PA	173	DAYTON, OH	$13.14
18	SHARON, PA	174	CLEVELAND, OH	$8.48
18	SHARON, PA	175	MANSFIELD, OH	$9.75
18	SHARON, PA	176	COLUMBUS, OH	$16.96
18	SHARON, PA	177	LIMA, OH	$15.58
18	SHARON, PA	178	DUBOIS, PA	$10.60
18	SHARON, PA	179	PARKERSBURG, WV	$11.66
18	SHARON, PA	180	SANDUSKY, OH	$9.54
18	SHARON, PA	181	WHEELING, WV	$10.60
18	SHARON, PA	182	CHILLICOTHE, OH	$12.93
18	SHARON, PA	183	ZANESVILLE, OH	$10.60
18	SHARON, PA	195	ALTOONA, PA	$17.28
18	SHARON, PA	196	HARRISBURG, PA	$7.74
18	SHARON, PA	197	PITTSBURGH, PA	$8.18
18	SHARON, PA	231	ELKINS, WV	$5.62
18	SHARON, PA	234	CHARLESTON, WV	$15.58
18	SHARON, PA	235	CLARKSBURG, WV	$9.75
18	SHARON, PA	239	MILWAUKEE, WI	$19.00
19	STATE COLLEGE, PA	41	NORWICH, CT	$19.12
19	STATE COLLEGE, PA	42	HARTFORD, CT	$19.12
19	STATE COLLEGE, PA	43	NEW YORK, NY	$17.09
19	STATE COLLEGE, PA	44	TORRINGTON, CT	$19.12
19	STATE COLLEGE, PA	45	PHILADEPHIA, PA	$15.29

Table F6. Transport rates for coal shipments by regular rail—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
19	STATE COLLEGE, PA	46	DOVER, DE	$17.34
19	STATE COLLEGE, PA	47	WASHINGTON, DC	$16.81
19	STATE COLLEGE, PA	53	AUGUSTA, GA	$20.73
19	STATE COLLEGE, PA	55	CHATTANOOGA, TN	$20.61
19	STATE COLLEGE, PA	58	SAVANNAH, GA	$20.73
19	STATE COLLEGE, PA	66	DANVILLE, IL	$20.84
19	STATE COLLEGE, PA	67	CHICAGO, IL	$20.44
19	STATE COLLEGE, PA	71	LASALLE, IL	$20.73
19	STATE COLLEGE, PA	73	ROCKFORD, IL	$20.71
19	STATE COLLEGE, PA	76	MUNCIE, IN	$19.55
19	STATE COLLEGE, PA	77	EVANSVILLE, IN	$20.39
19	STATE COLLEGE, PA	79	CINCINNATI, OH	$19.86
19	STATE COLLEGE, PA	80	INDIANAPOLIS, IN	$19.50
19	STATE COLLEGE, PA	81	FT. WAYNE, IN	$19.55
19	STATE COLLEGE, PA	82	SOUTH BEND, IN	$19.48
19	STATE COLLEGE, PA	83	BLOOMINGTON, IN	$19.48
19	STATE COLLEGE, PA	84	TERRA HAUTE, IN	$20.39
19	STATE COLLEGE, PA	102	LEXINGTON, KY	$18.80
19	STATE COLLEGE, PA	103	HUNTINGTON, WV	$17.89
19	STATE COLLEGE, PA	107	LEWISTON, ME	$20.90
19	STATE COLLEGE, PA	108	HOULTON, ME	$21.79
19	STATE COLLEGE, PA	109	BANGOR, ME	$21.79
19	STATE COLLEGE, PA	110	PORTLAND, ME	$20.90
19	STATE COLLEGE, PA	111	GREENVILLE, ME	$21.79
19	STATE COLLEGE, PA	112	FREDERICK, MD	$16.01
19	STATE COLLEGE, PA	113	HAGERSTOWN, MD	$16.96
19	STATE COLLEGE, PA	114	SALISBURY, MD	$16.03
19	STATE COLLEGE, PA	115	BALTIMORE, MD	$16.01
19	STATE COLLEGE, PA	116	BRANDYWINE, MD	$16.96
19	STATE COLLEGE, PA	117	PITTSFIELD, MA	$16.66
19	STATE COLLEGE, PA	118	WORCESTER, MA	$18.61
19	STATE COLLEGE, PA	119	BOSTON, MA	$18.61
19	STATE COLLEGE, PA	120	PROVIDENCE, RI	$20.01
19	STATE COLLEGE, PA	121	MANCHESTER, NH	$19.04
19	STATE COLLEGE, PA	122	GRAND RAPIDS, MI	$19.63
19	STATE COLLEGE, PA	123	DETROIT, MI	$17.96
19	STATE COLLEGE, PA	124	TOLEDO, OH	$18.74
19	STATE COLLEGE, PA	125	KALAMAZOO, MI	$18.83
19	STATE COLLEGE, PA	126	MARQUETTE, MI	$20.50
19	STATE COLLEGE, PA	149	PLYMOUTH, NH	$16.01
19	STATE COLLEGE, PA	150	ATLANTIC CITY, NJ	$17.81
19	STATE COLLEGE, PA	158	SYRACUSE, NY	$16.90
19	STATE COLLEGE, PA	159	BURLINGTON, VT	$16.32
19	STATE COLLEGE, PA	160	ROCHESTER, NY	$18.06
19	STATE COLLEGE, PA	161	ALBANY, NY	$16.18
19	STATE COLLEGE, PA	162	BUFFALO, NY	$15.37
19	STATE COLLEGE, PA	163	BINGHAMTON, NY	$16.32
19	STATE COLLEGE, PA	164	OLEAN, NY	$19.61
19	STATE COLLEGE, PA	165	HICKORY, NC	$18.72
19	STATE COLLEGE, PA	166	RALEIGH, NC	$19.61
19	STATE COLLEGE, PA	167	CHARLOTTE, NC	$18.72
19	STATE COLLEGE, PA	168	ELIZABETH CITY, NC	$18.74
19	STATE COLLEGE, PA	169	FAYETTEVILLE, NC	$18.72
19	STATE COLLEGE, PA	170	WILMINGTON, NC	$19.61
19	STATE COLLEGE, PA	171	ASHEVILLE, NC	$19.61
19	STATE COLLEGE, PA	173	DAYTON, OH	$18.68
19	STATE COLLEGE, PA	174	CLEVELAND, OH	$9.12
19	STATE COLLEGE, PA	175	MANSFIELD, OH	$17.81
19	STATE COLLEGE, PA	176	COLUMBUS, OH	$17.85
19	STATE COLLEGE, PA	177	LIMA, OH	$18.66
19	STATE COLLEGE, PA	178	DUBOIS, PA	$11.66
19	STATE COLLEGE, PA	179	PARKERSBURG, WV	$17.91
19	STATE COLLEGE, PA	180	SANDUSKY, OH	$12.61
19	STATE COLLEGE, PA	181	WHEELING, WV	$12.08
19	STATE COLLEGE, PA	182	CHILLICOTHE, OH	$17.98
19	STATE COLLEGE, PA	183	ZANESVILLE, OH	$18.19
19	STATE COLLEGE, PA	195	ALTOONA, PA	$16.47
19	STATE COLLEGE, PA	196	HARRISBURG, PA	$16.28
19	STATE COLLEGE, PA	197	PITTSBURGH, PA	$16.96
19	STATE COLLEGE, PA	199	CHARLESTON, SC	$19.72
19	STATE COLLEGE, PA	200	COLUMBIA, SC	$20.61
19	STATE COLLEGE, PA	201	FLORENCE, SC	$19.69
19	STATE COLLEGE, PA	202	SPARTANBURG, SC	$19.61
19	STATE COLLEGE, PA	203	GREENWOOD, SC	$20.90
19	STATE COLLEGE, PA	204	GEORGETOWN, SC	$19.69
19	STATE COLLEGE, PA	207	KNOXVILLE, TN	$19.76
19	STATE COLLEGE, PA	208	NASHVILLE, TN	$20.37
19	STATE COLLEGE, PA	221	MONTPELIER, VT	$18.25
19	STATE COLLEGE, PA	222	LYNCHBURG, VA	$17.87
19	STATE COLLEGE, PA	223	NORFOLK, VA	$18.76
19	STATE COLLEGE, PA	224	FREDERICKSBURG, VA	$16.90
19	STATE COLLEGE, PA	225	RICHMOND, VA	$18.02
19	STATE COLLEGE, PA	226	ROANOKE, VA	$17.87
19	STATE COLLEGE, PA	231	ELKINS, WV	$11.87

Table F6. Transport rates for coal shipments by regular rail—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
19	STATE COLLEGE, PA	232	GASSAWAY, WV	$19.12
19	STATE COLLEGE, PA	233	MARTINSBURG, WV	$19.12
19	STATE COLLEGE, PA	234	CHARLESTON, WV	$17.77
19	STATE COLLEGE, PA	235	CLARKSBURG, WV	$12.08
19	STATE COLLEGE, PA	236	BECKLEY, WV	$19.12
19	STATE COLLEGE, PA	239	MILWAUKEE, WI	$20.90
20	SOMERSET, PA	2	COLUMBUS, GA	$19.44
20	SOMERSET, PA	3	GADSDEN, AL	$19.27
20	SOMERSET, PA	4	BIRMINGHAM, AL	$19.25
20	SOMERSET, PA	7	DECATUR, AL	$18.85
20	SOMERSET, PA	18	MEMPHIS, TN	$19.63
20	SOMERSET, PA	41	NORWICH, CT	$20.48
20	SOMERSET, PA	42	HARTFORD, CT	$20.48
20	SOMERSET, PA	43	NEW YORK, NY	$17.74
20	SOMERSET, PA	44	TORRINGTON, CT	$20.48
20	SOMERSET, PA	45	PHILADEPHIA, PA	$15.58
20	SOMERSET, PA	46	DOVER, DE	$17.94
20	SOMERSET, PA	47	WASHINGTON, DC	$15.16
20	SOMERSET, PA	49	JACKSONVILLE, FL	$20.50
20	SOMERSET, PA	53	AUGUSTA, GA	$19.80
20	SOMERSET, PA	54	MACON, GA	$19.31
20	SOMERSET, PA	55	CHATTANOOGA, TN	$18.38
20	SOMERSET, PA	56	ATLANTA, GA	$19.33
20	SOMERSET, PA	57	ATHENS, GA	$19.33
20	SOMERSET, PA	58	SAVANNAH, GA	$19.80
20	SOMERSET, PA	59	ALBANY, GA	$19.80
20	SOMERSET, PA	65	PEORIA, IL	$19.14
20	SOMERSET, PA	66	DANVILLE, IL	$18.66
20	SOMERSET, PA	67	CHICAGO, IL	$19.12
20	SOMERSET, PA	70	ST. LOUIS, MO	$19.46
20	SOMERSET, PA	71	LASALLE, IL	$19.42
20	SOMERSET, PA	73	ROCKFORD, IL	$19.42
20	SOMERSET, PA	74	MARION, IL	$19.82
20	SOMERSET, PA	75	SPRINGFIELD, IL	$19.55
20	SOMERSET, PA	76	MUNCIE, IN	$16.75
20	SOMERSET, PA	77	EVANSVILLE, IN	$17.98
20	SOMERSET, PA	78	LOUISVILLE, KY	$17.24
20	SOMERSET, PA	79	CINCINNATI, OH	$17.68
20	SOMERSET, PA	80	INDIANAPOLIS, IN	$17.11
20	SOMERSET, PA	81	FT. WAYNE, IN	$16.54
20	SOMERSET, PA	82	SOUTH BEND, IN	$17.57
20	SOMERSET, PA	83	BLOOMINGTON, IN	$17.11
20	SOMERSET, PA	84	TERRA HAUTE, IN	$17.32
20	SOMERSET, PA	103	HUNTINGTON, WV	$15.71
20	SOMERSET, PA	107	LEWISTON, ME	$22.26
20	SOMERSET, PA	108	HOULTON, ME	$23.74
20	SOMERSET, PA	109	BANGOR, ME	$23.74
20	SOMERSET, PA	110	PORTLAND, ME	$22.26
20	SOMERSET, PA	111	GREENVILLE, ME	$23.74
20	SOMERSET, PA	112	FREDERICK, MD	$16.47
20	SOMERSET, PA	113	HAGERSTOWN, MD	$11.02
20	SOMERSET, PA	114	SALISBURY, MD	$16.43
20	SOMERSET, PA	115	BALTIMORE, MD	$16.37
20	SOMERSET, PA	116	BRANDYWINE, MD	$16.03
20	SOMERSET, PA	117	PITTSFIELD, MA	$18.53
20	SOMERSET, PA	118	WORCESTER, MA	$19.95
20	SOMERSET, PA	119	BOSTON, MA	$19.95
20	SOMERSET, PA	121	MANCHESTER, NH	$20.31
20	SOMERSET, PA	122	GRAND RAPIDS, MI	$17.43
20	SOMERSET, PA	123	DETROIT, MI	$16.49
20	SOMERSET, PA	124	TOLEDO, OH	$15.69
20	SOMERSET, PA	125	KALAMAZOO, MI	$17.51
20	SOMERSET, PA	126	MARQUETTE, MI	$19.21
20	SOMERSET, PA	129	DULUTH, MN	$21.05
20	SOMERSET, PA	131	MINNEAPOLIS, MN	$20.80
20	SOMERSET, PA	135	TUPELO, MS	$19.33
20	SOMERSET, PA	149	PLYMOUTH, NH	$17.36
20	SOMERSET, PA	150	ATLANTIC CITY, NJ	$17.45
20	SOMERSET, PA	151	SCRANTON, PA	$14.84
20	SOMERSET, PA	158	SYRACUSE, NY	$19.12
20	SOMERSET, PA	159	BURLINGTON, VT	$17.66
20	SOMERSET, PA	160	ROCHESTER, NY	$19.95
20	SOMERSET, PA	161	ALBANY, NY	$14.84
20	SOMERSET, PA	162	BUFFALO, NY	$20.92
20	SOMERSET, PA	163	BINGHAMTON, NY	$14.84
20	SOMERSET, PA	164	OLEAN, NY	$17.60
20	SOMERSET, PA	165	HICKORY, NC	$17.43
20	SOMERSET, PA	166	RALEIGH, NC	$17.70
20	SOMERSET, PA	167	CHARLOTTE, NC	$18.13
20	SOMERSET, PA	168	ELIZABETH CITY, NC	$17.24
20	SOMERSET, PA	169	FAYETTEVILLE, NC	$17.43
20	SOMERSET, PA	171	ASHEVILLE, NC	$18.91
20	SOMERSET, PA	173	DAYTON, OH	$16.24
20	SOMERSET, PA	174	CLEVELAND, OH	$14.84

Table F6. Transport rates for coal shipments by regular rail—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
20	SOMERSET, PA	175	MANSFIELD, OH	$14.84
20	SOMERSET, PA	176	COLUMBUS, OH	$15.67
20	SOMERSET, PA	177	LIMA, OH	$15.58
20	SOMERSET, PA	178	DUBOIS, PA	$11.45
20	SOMERSET, PA	179	PARKERSBURG, WV	$15.73
20	SOMERSET, PA	180	SANDUSKY, OH	$12.72
20	SOMERSET, PA	181	WHEELING, WV	$13.57
20	SOMERSET, PA	182	CHILLICOTHE, OH	$15.79
20	SOMERSET, PA	183	ZANESVILLE, OH	$16.01
20	SOMERSET, PA	195	ALTOONA, PA	$10.60
20	SOMERSET, PA	196	HARRISBURG, PA	$14.84
20	SOMERSET, PA	197	PITTSBURGH, PA	$8.90
20	SOMERSET, PA	198	SUMTER, SC	$20.10
20	SOMERSET, PA	199	CHARLESTON, SC	$19.10
20	SOMERSET, PA	200	COLUMBIA, SC	$18.91
20	SOMERSET, PA	201	FLORENCE, SC	$19.08
20	SOMERSET, PA	202	SPARTANBURG, SC	$17.41
20	SOMERSET, PA	203	GREENWOOD, SC	$19.93
20	SOMERSET, PA	204	GEORGETOWN, SC	$19.08
20	SOMERSET, PA	207	KNOXVILLE, TN	$17.87
20	SOMERSET, PA	208	NASHVILLE, TN	$18.36
20	SOMERSET, PA	209	JACKSON, TN	$20.75
20	SOMERSET, PA	221	MONTPELIER, VT	$20.48
20	SOMERSET, PA	222	LYNCHBURG, VA	$16.39
20	SOMERSET, PA	223	NORFOLK, VA	$18.15
20	SOMERSET, PA	224	FREDERICKSBURG, VA	$16.49
20	SOMERSET, PA	225	RICHMOND, VA	$17.60
20	SOMERSET, PA	226	ROANOKE, VA	$16.37
20	SOMERSET, PA	231	ELKINS, WV	$11.87
20	SOMERSET, PA	232	GASSAWAY, WV	$16.94
20	SOMERSET, PA	233	MARTINSBURG, WV	$10.60
20	SOMERSET, PA	234	CHARLESTON, WV	$15.58
20	SOMERSET, PA	235	CLARKSBURG, WV	$12.72
20	SOMERSET, PA	236	BECKLEY, WV	$16.94
20	SOMERSET, PA	237	GREEN BAY, WI	$20.48
20	SOMERSET, PA	239	MILWAUKEE, WI	$19.74
20	SOMERSET, PA	240	MADISON, WI	$20.48
21	CHARLESTON, WV	1	JACKSON, AL	$18.23
21	CHARLESTON, WV	2	COLUMBUS, GA	$17.45
21	CHARLESTON, WV	3	GADSDEN, AL	$16.47
21	CHARLESTON, WV	4	BIRMINGHAM, AL	$18.21
21	CHARLESTON, WV	5	MOBILE, AL	$18.02
21	CHARLESTON, WV	6	DOTHAN, AL	$17.34
21	CHARLESTON, WV	7	DECATUR, AL	$16.07
21	CHARLESTON, WV	16	LITTLE ROCK, AR	$19.38
21	CHARLESTON, WV	17	FT. SMITH, AR	$20.27
21	CHARLESTON, WV	18	MEMPHIS, TN	$17.04
21	CHARLESTON, WV	19	MONROE, LA	$19.38
21	CHARLESTON, WV	20	JONESBORO, AR	$18.17
21	CHARLESTON, WV	21	CLARKSVILLE, AR	$19.38
21	CHARLESTON, WV	22	SHREVEPORT, LA	$20.27
21	CHARLESTON, WV	41	NORWICH, CT	$21.14
21	CHARLESTON, WV	42	HARTFORD, CT	$21.14
21	CHARLESTON, WV	43	NEW YORK, NY	$19.10
21	CHARLESTON, WV	44	TORRINGTON, CT	$21.14
21	CHARLESTON, WV	45	PHILADEPHIA, PA	$16.35
21	CHARLESTON, WV	46	DOVER, DE	$18.49
21	CHARLESTON, WV	47	WASHINGTON, DC	$15.58
21	CHARLESTON, WV	48	ORLANDO, FL	$18.95
21	CHARLESTON, WV	49	JACKSONVILLE, FL	$18.49
21	CHARLESTON, WV	52	TAMPA, FL	$18.97
21	CHARLESTON, WV	53	AUGUSTA, GA	$16.56
21	CHARLESTON, WV	54	MACON, GA	$16.98
21	CHARLESTON, WV	55	CHATTANOOGA, TN	$15.71
21	CHARLESTON, WV	56	ATLANTA, GA	$16.79
21	CHARLESTON, WV	57	ATHENS, GA	$16.79
21	CHARLESTON, WV	58	SAVANNAH, GA	$16.98
21	CHARLESTON, WV	59	ALBANY, GA	$16.98
21	CHARLESTON, WV	65	PEORIA, IL	$17.26
21	CHARLESTON, WV	66	DANVILLE, IL	$16.64
21	CHARLESTON, WV	67	CHICAGO, IL	$13.72
21	CHARLESTON, WV	68	DUBUQUE, IA	$18.34
21	CHARLESTON, WV	69	DAVENPORT, IA	$18.53
21	CHARLESTON, WV	70	ST. LOUIS, MO	$17.51
21	CHARLESTON, WV	71	LASALLE, IL	$17.43
21	CHARLESTON, WV	72	PADUCAH, KY	$15.92
21	CHARLESTON, WV	73	ROCKFORD, IL	$18.32
21	CHARLESTON, WV	74	MARION, IL	$17.53
21	CHARLESTON, WV	75	SPRINGFIELD, IL	$17.24
21	CHARLESTON, WV	76	MUNCIE, IN	$15.05
21	CHARLESTON, WV	77	EVANSVILLE, IN	$15.39
21	CHARLESTON, WV	78	LOUISVILLE, KY	$13.36
21	CHARLESTON, WV	79	CINCINNATI, OH	$10.60
21	CHARLESTON, WV	80	INDIANAPOLIS, IN	$9.37

Table F6. Transport rates for coal shipments by regular rail—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
21	CHARLESTON, WV	81	FT. WAYNE, IN	$15.35
21	CHARLESTON, WV	82	SOUTH BEND, IN	$16.18
21	CHARLESTON, WV	83	BLOOMINGTON, IN	$15.16
21	CHARLESTON, WV	84	TERRA HAUTE, IN	$15.48
21	CHARLESTON, WV	86	SIOUX CITY, IA	$20.99
21	CHARLESTON, WV	88	WATERLOO, IA	$19.21
21	CHARLESTON, WV	89	MASON CITY, IA	$19.21
21	CHARLESTON, WV	90	SPENCER, IA	$20.10
21	CHARLESTON, WV	91	OTTUMWA, IA	$19.21
21	CHARLESTON, WV	92	DES MOINES, IA	$19.21
21	CHARLESTON, WV	93	CRESTON, IA	$19.21
21	CHARLESTON, WV	94	KANSAS CITY, MO	$20.25
21	CHARLESTON, WV	101	HAZARD, KY	$12.72
21	CHARLESTON, WV	102	LEXINGTON, KY	$9.54
21	CHARLESTON, WV	103	HUNTINGTON, WV	$7.65
21	CHARLESTON, WV	104	ELIZABETHTOWN, KY	$12.72
21	CHARLESTON, WV	105	BOWLING GREEN, KY	$15.98
21	CHARLESTON, WV	106	NEW ORLEANS, LA	$19.38
21	CHARLESTON, WV	110	PORTLAND, ME	$23.79
21	CHARLESTON, WV	112	FREDERICK, MD	$17.13
21	CHARLESTON, WV	113	HAGERSTOWN, MD	$15.35
21	CHARLESTON, WV	114	SALISBURY, MD	$17.13
21	CHARLESTON, WV	115	BALTIMORE, MD	$17.13
21	CHARLESTON, WV	116	BRANDYWINE, MD	$16.24
21	CHARLESTON, WV	117	PITTSFIELD, MA	$19.72
21	CHARLESTON, WV	119	BOSTON, MA	$21.45
21	CHARLESTON, WV	120	PROVIDENCE, RI	$22.85
21	CHARLESTON, WV	122	GRAND RAPIDS, MI	$17.28
21	CHARLESTON, WV	123	DETROIT, MI	$15.98
21	CHARLESTON, WV	124	TOLEDO, OH	$15.73
21	CHARLESTON, WV	125	KALAMAZOO, MI	$16.64
21	CHARLESTON, WV	126	MARQUETTE, MI	$18.97
21	CHARLESTON, WV	127	ST. CLOUD, MN	$19.95
21	CHARLESTON, WV	129	DULUTH, MN	$20.84
21	CHARLESTON, WV	131	MINNEAPOLIS, MN	$20.10
21	CHARLESTON, WV	133	WILLMAR, MN	$20.18
21	CHARLESTON, WV	134	GREENVILLE, MS	$18.32
21	CHARLESTON, WV	135	TUPELO, MS	$16.54
21	CHARLESTON, WV	136	GREENSBORO, NC	$19.36
21	CHARLESTON, WV	137	JEFFERSON CITY, MO	$17.19
21	CHARLESTON, WV	138	CAPE GIRARDEAU, MO	$19.38
21	CHARLESTON, WV	149	PLYMOUTH, NH	$18.02
21	CHARLESTON, WV	150	ATLANTIC CITY, NJ	$18.06
21	CHARLESTON, WV	151	SCRANTON, PA	$23.91
21	CHARLESTON, WV	158	SYRACUSE, NY	$20.67
21	CHARLESTON, WV	159	BURLINGTON, VT	$18.34
21	CHARLESTON, WV	160	ROCHESTER, NY	$21.35
21	CHARLESTON, WV	161	ALBANY, NY	$18.10
21	CHARLESTON, WV	162	BUFFALO, NY	$18.57
21	CHARLESTON, WV	163	BINGHAMTON, NY	$18.34
21	CHARLESTON, WV	164	OLEAN, NY	$15.41
21	CHARLESTON, WV	165	HICKORY, NC	$16.54
21	CHARLESTON, WV	166	RALEIGH, NC	$17.81
21	CHARLESTON, WV	167	CHARLOTTE, NC	$17.04
21	CHARLESTON, WV	168	ELIZABETH CITY, NC	$16.30
21	CHARLESTON, WV	169	FAYETTEVILLE, NC	$16.54
21	CHARLESTON, WV	170	WILMINGTON, NC	$17.19
21	CHARLESTON, WV	171	ASHEVILLE, NC	$16.62
21	CHARLESTON, WV	173	DAYTON, OH	$9.46
21	CHARLESTON, WV	174	CLEVELAND, OH	$12.02
21	CHARLESTON, WV	175	MANSFIELD, OH	$15.69
21	CHARLESTON, WV	176	COLUMBUS, OH	$8.69
21	CHARLESTON, WV	177	LIMA, OH	$13.25
21	CHARLESTON, WV	178	DUBOIS, PA	$15.50
21	CHARLESTON, WV	179	PARKERSBURG, WV	$9.12
21	CHARLESTON, WV	180	SANDUSKY, OH	$14.16
21	CHARLESTON, WV	181	WHEELING, WV	$15.39
21	CHARLESTON, WV	182	CHILLICOTHE, OH	$8.90
21	CHARLESTON, WV	183	ZANESVILLE, OH	$8.48
21	CHARLESTON, WV	195	ALTOONA, PA	$17.34
21	CHARLESTON, WV	196	HARRISBURG, PA	$17.07
21	CHARLESTON, WV	197	PITTSBURGH, PA	$15.54
21	CHARLESTON, WV	198	SUMTER, SC	$17.60
21	CHARLESTON, WV	199	CHARLESTON, SC	$17.57
21	CHARLESTON, WV	200	COLUMBIA, SC	$16.41
21	CHARLESTON, WV	201	FLORENCE, SC	$16.39
21	CHARLESTON, WV	202	SPARTANBURG, SC	$15.60
21	CHARLESTON, WV	203	GREENWOOD, SC	$16.73
21	CHARLESTON, WV	204	GEORGETOWN, SC	$16.41
21	CHARLESTON, WV	207	KNOXVILLE, TN	$15.58
21	CHARLESTON, WV	208	NASHVILLE, TN	$15.77
21	CHARLESTON, WV	209	JACKSON, TN	$18.17
21	CHARLESTON, WV	222	LYNCHBURG, VA	$15.54
21	CHARLESTON, WV	223	NORFOLK, VA	$15.37

Table F6. Transport rates for coal shipments by regular rail—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
21	CHARLESTON, WV	224	FREDERICKSBURG, VA	$16.39
21	CHARLESTON, WV	225	RICHMOND, VA	$16.58
21	CHARLESTON, WV	226	ROANOKE, VA	$15.12
21	CHARLESTON, WV	231	ELKINS, WV	$10.60
21	CHARLESTON, WV	232	GASSAWAY, WV	$8.69
21	CHARLESTON, WV	233	MARTINSBURG, WV	$16.71
21	CHARLESTON, WV	234	CHARLESTON, WV	$6.49
21	CHARLESTON, WV	235	CLARKSBURG, WV	$20.88
21	CHARLESTON, WV	236	BECKLEY, WV	$8.69
21	CHARLESTON, WV	237	GREEN BAY, WI	$20.25
21	CHARLESTON, WV	238	WAUSAU, WI	$20.25
21	CHARLESTON, WV	239	MILWAUKEE, WI	$19.57
21	CHARLESTON, WV	240	MADISON, WI	$19.38
22	CLARKSBURG, WV	41	NORWICH, CT	$20.82
22	CLARKSBURG, WV	42	HARTFORD, CT	$20.82
22	CLARKSBURG, WV	44	TORRINGTON, CT	$20.82
22	CLARKSBURG, WV	45	PHILADEPHIA, PA	$16.75
22	CLARKSBURG, WV	79	CINCINNATI, OH	$19.12
22	CLARKSBURG, WV	103	HUNTINGTON, WV	$9.14
22	CLARKSBURG, WV	107	LEWISTON, ME	$23.47
22	CLARKSBURG, WV	113	HAGERSTOWN, MD	$6.32
22	CLARKSBURG, WV	151	SCRANTON, PA	$10.18
22	CLARKSBURG, WV	161	ALBANY, NY	$9.09
22	CLARKSBURG, WV	163	BINGHAMTON, NY	$8.71
22	CLARKSBURG, WV	174	CLEVELAND, OH	$7.53
22	CLARKSBURG, WV	175	MANSFIELD, OH	$7.59
22	CLARKSBURG, WV	178	DUBOIS, PA	$7.44
22	CLARKSBURG, WV	179	PARKERSBURG, WV	$15.94
22	CLARKSBURG, WV	180	SANDUSKY, OH	$7.27
22	CLARKSBURG, WV	181	WHEELING, WV	$6.06
22	CLARKSBURG, WV	195	ALTOONA, PA	$7.36
22	CLARKSBURG, WV	196	HARRISBURG, PA	$7.65
22	CLARKSBURG, WV	197	PITTSBURGH, PA	$6.38
22	CLARKSBURG, WV	231	ELKINS, WV	$3.84
22	CLARKSBURG, WV	232	GASSAWAY, WV	$6.87
22	CLARKSBURG, WV	233	MARTINSBURG, WV	$5.41
22	CLARKSBURG, WV	234	CHARLESTON, WV	$9.29
22	CLARKSBURG, WV	235	CLARKSBURG, WV	$6.70
22	CLARKSBURG, WV	236	BECKLEY, WV	$6.87
23	PHILIPPI, WV	1	JACKSON, AL	$20.42
23	PHILIPPI, WV	2	COLUMBUS, GA	$19.63
23	PHILIPPI, WV	3	GADSDEN, AL	$18.66
23	PHILIPPI, WV	4	BIRMINGHAM, AL	$18.63
23	PHILIPPI, WV	6	DOTHAN, AL	$19.53
23	PHILIPPI, WV	7	DECATUR, AL	$18.42
23	PHILIPPI, WV	18	MEMPHIS, TN	$18.66
23	PHILIPPI, WV	41	NORWICH, CT	$20.67
23	PHILIPPI, WV	42	HARTFORD, CT	$20.67
23	PHILIPPI, WV	43	NEW YORK, NY	$18.78
23	PHILIPPI, WV	44	TORRINGTON, CT	$20.67
23	PHILIPPI, WV	45	PHILADEPHIA, PA	$16.39
23	PHILIPPI, WV	46	DOVER, DE	$18.02
23	PHILIPPI, WV	47	WASHINGTON, DC	$16.83
23	PHILIPPI, WV	49	JACKSONVILLE, FL	$20.67
23	PHILIPPI, WV	53	AUGUSTA, GA	$19.14
23	PHILIPPI, WV	54	MACON, GA	$19.14
23	PHILIPPI, WV	55	CHATTANOOGA, TN	$17.72
23	PHILIPPI, WV	56	ATLANTA, GA	$19.14
23	PHILIPPI, WV	57	ATHENS, GA	$19.14
23	PHILIPPI, WV	58	SAVANNAH, GA	$19.14
23	PHILIPPI, WV	59	ALBANY, GA	$19.14
23	PHILIPPI, WV	65	PEORIA, IL	$18.44
23	PHILIPPI, WV	66	DANVILLE, IL	$17.94
23	PHILIPPI, WV	67	CHICAGO, IL	$18.44
23	PHILIPPI, WV	71	LASALLE, IL	$18.72
23	PHILIPPI, WV	72	PADUCAH, KY	$17.57
23	PHILIPPI, WV	73	ROCKFORD, IL	$19.61
23	PHILIPPI, WV	74	MARION, IL	$19.72
23	PHILIPPI, WV	75	SPRINGFIELD, IL	$18.85
23	PHILIPPI, WV	76	MUNCIE, IN	$16.66
23	PHILIPPI, WV	77	EVANSVILLE, IN	$17.49
23	PHILIPPI, WV	78	LOUISVILLE, KY	$16.60
23	PHILIPPI, WV	79	CINCINNATI, OH	$18.97
23	PHILIPPI, WV	80	INDIANAPOLIS, IN	$16.60
23	PHILIPPI, WV	81	FT. WAYNE, IN	$17.53
23	PHILIPPI, WV	82	SOUTH BEND, IN	$18.36
23	PHILIPPI, WV	83	BLOOMINGTON, IN	$16.60
23	PHILIPPI, WV	84	TERRA HAUTE, IN	$17.49
23	PHILIPPI, WV	96	TOPEKA, KS	$21.20
23	PHILIPPI, WV	101	HAZARD, KY	$15.94
23	PHILIPPI, WV	102	LEXINGTON, KY	$15.92
23	PHILIPPI, WV	103	HUNTINGTON, WV	$11.77
23	PHILIPPI, WV	104	ELIZABETHTOWN, KY	$18.02
23	PHILIPPI, WV	105	BOWLING GREEN, KY	$17.68

Table F6. Transport rates for coal shipments by regular rail—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
23	PHILIPPI, WV	107	LEWISTON, ME	$23.32
23	PHILIPPI, WV	109	BANGOR, ME	$24.21
23	PHILIPPI, WV	110	PORTLAND, ME	$23.32
23	PHILIPPI, WV	111	GREENVILLE, ME	$24.21
23	PHILIPPI, WV	112	FREDERICK, MD	$16.66
23	PHILIPPI, WV	113	HAGERSTOWN, MD	$9.75
23	PHILIPPI, WV	114	SALISBURY, MD	$16.66
23	PHILIPPI, WV	115	BALTIMORE, MD	$16.66
23	PHILIPPI, WV	116	BRANDYWINE, MD	$16.77
23	PHILIPPI, WV	117	PITTSFIELD, MA	$19.25
23	PHILIPPI, WV	118	WORCESTER, MA	$21.03
23	PHILIPPI, WV	119	BOSTON, MA	$21.03
23	PHILIPPI, WV	120	PROVIDENCE, RI	$22.43
23	PHILIPPI, WV	122	GRAND RAPIDS, MI	$18.21
23	PHILIPPI, WV	123	DETROIT, MI	$17.24
23	PHILIPPI, WV	124	TOLEDO, OH	$16.88
23	PHILIPPI, WV	125	KALAMAZOO, MI	$17.70
23	PHILIPPI, WV	126	MARQUETTE, MI	$20.27
23	PHILIPPI, WV	134	GREENVILLE, MS	$19.61
23	PHILIPPI, WV	135	TUPELO, MS	$18.72
23	PHILIPPI, WV	149	PLYMOUTH, NH	$17.53
23	PHILIPPI, WV	150	ATLANTIC CITY, NJ	$21.45
23	PHILIPPI, WV	151	SCRANTON, PA	$25.55
23	PHILIPPI, WV	158	SYRACUSE, NY	$20.18
23	PHILIPPI, WV	159	BURLINGTON, VT	$18.74
23	PHILIPPI, WV	160	ROCHESTER, NY	$20.03
23	PHILIPPI, WV	161	ALBANY, NY	$17.60
23	PHILIPPI, WV	162	BUFFALO, NY	$17.26
23	PHILIPPI, WV	163	BINGHAMTON, NY	$16.75
23	PHILIPPI, WV	164	OLEAN, NY	$17.70
23	PHILIPPI, WV	165	HICKORY, NC	$16.71
23	PHILIPPI, WV	167	CHARLOTTE, NC	$17.60
23	PHILIPPI, WV	169	FAYETTEVILLE, NC	$16.73
23	PHILIPPI, WV	171	ASHEVILLE, NC	$17.91
23	PHILIPPI, WV	173	DAYTON, OH	$15.77
23	PHILIPPI, WV	174	CLEVELAND, OH	$11.66
23	PHILIPPI, WV	175	MANSFIELD, OH	$12.08
23	PHILIPPI, WV	176	COLUMBUS, OH	$15.84
23	PHILIPPI, WV	177	LIMA, OH	$16.64
23	PHILIPPI, WV	178	DUBOIS, PA	$10.60
23	PHILIPPI, WV	179	PARKERSBURG, WV	$8.48
23	PHILIPPI, WV	180	SANDUSKY, OH	$12.08
23	PHILIPPI, WV	181	WHEELING, WV	$8.48
23	PHILIPPI, WV	182	CHILLICOTHE, OH	$15.96
23	PHILIPPI, WV	183	ZANESVILLE, OH	$16.18
23	PHILIPPI, WV	195	ALTOONA, PA	$11.13
23	PHILIPPI, WV	196	HARRISBURG, PA	$11.87
23	PHILIPPI, WV	197	PITTSBURGH, PA	$8.48
23	PHILIPPI, WV	198	SUMTER, SC	$19.40
23	PHILIPPI, WV	199	CHARLESTON, SC	$18.40
23	PHILIPPI, WV	200	COLUMBIA, SC	$18.21
23	PHILIPPI, WV	201	FLORENCE, SC	$18.38
23	PHILIPPI, WV	202	SPARTANBURG, SC	$16.71
23	PHILIPPI, WV	203	GREENWOOD, SC	$19.21
23	PHILIPPI, WV	204	GEORGETOWN, SC	$18.38
23	PHILIPPI, WV	207	KNOXVILLE, TN	$16.88
23	PHILIPPI, WV	208	NASHVILLE, TN	$17.49
23	PHILIPPI, WV	209	JACKSON, TN	$19.78
23	PHILIPPI, WV	222	LYNCHBURG, VA	$15.62
23	PHILIPPI, WV	223	NORFOLK, VA	$17.72
23	PHILIPPI, WV	224	FREDERICKSBURG, VA	$16.79
23	PHILIPPI, WV	225	RICHMOND, VA	$16.90
23	PHILIPPI, WV	226	ROANOKE, VA	$15.62
23	PHILIPPI, WV	231	ELKINS, WV	$9.54
23	PHILIPPI, WV	232	GASSAWAY, WV	$10.60
23	PHILIPPI, WV	233	MARTINSBURG, WV	$13.46
23	PHILIPPI, WV	234	CHARLESTON, WV	$9.39
23	PHILIPPI, WV	235	CLARKSBURG, WV	$9.54
23	PHILIPPI, WV	236	BECKLEY, WV	$11.87
23	PHILIPPI, WV	239	MILWAUKEE, WI	$20.67
23	PHILIPPI, WV	240	MADISON, WI	$20.67
26	PEORIA, IL	65	PEORIA, IL	$2.57
26	PEORIA, IL	66	DANVILLE, IL	$6.70
26	PEORIA, IL	67	CHICAGO, IL	$11.60
26	PEORIA, IL	68	DUBUQUE, IA	$11.26
26	PEORIA, IL	69	DAVENPORT, IA	$2.52
26	PEORIA, IL	71	LASALLE, IL	$11.09
26	PEORIA, IL	73	ROCKFORD, IL	$8.88
26	PEORIA, IL	75	SPRINGFIELD, IL	$5.81
26	PEORIA, IL	88	WATERLOO, IA	$11.26
26	PEORIA, IL	89	MASON CITY, IA	$11.26
26	PEORIA, IL	92	DES MOINES, IA	$13.82
27	OTTAWA, IL	75	SPRINGFIELD, IL	$13.12
27	OTTAWA, IL	82	SOUTH BEND, IN	$6.89

Table F6. Transport rates for coal shipments by regular rail—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
27	OTTAWA, IL	122	GRAND RAPIDS, MI	$7.31
27	OTTAWA, IL	125	KALAMAZOO, MI	$7.70
27	OTTAWA, IL	126	MARQUETTE, MI	$7.82
27	OTTAWA, IL	237	GREEN BAY, WI	$5.79
27	OTTAWA, IL	239	MILWAUKEE, WI	$4.54
28	TAYLORVILLE, IL	65	PEORIA, IL	$15.22
28	TAYLORVILLE, IL	67	CHICAGO, IL	$16.54
28	TAYLORVILLE, IL	70	ST. LOUIS, MO	$12.53
28	TAYLORVILLE, IL	73	ROCKFORD, IL	$11.58
28	TAYLORVILLE, IL	74	MARION, IL	$11.96
28	TAYLORVILLE, IL	75	SPRINGFIELD, IL	$16.07
29	MT. VERNON, IL	7	DECATUR, AL	$15.09
29	MT. VERNON, IL	16	LITTLE ROCK, AR	$7.21
29	MT. VERNON, IL	17	FT. SMITH, AR	$12.51
29	MT. VERNON, IL	19	MONROE, LA	$12.72
29	MT. VERNON, IL	20	JONESBORO, AR	$4.03
29	MT. VERNON, IL	21	CLARKSVILLE, AR	$11.24
29	MT. VERNON, IL	22	SHREVEPORT, LA	$3.18
29	MT. VERNON, IL	38	PUEBLO, CO	$5.28
29	MT. VERNON, IL	50	W. PALM BEACH, FL	$43.33
29	MT. VERNON, IL	51	FT. MEYER, FL	$42.44
29	MT. VERNON, IL	52	TAMPA, FL	$42.51
29	MT. VERNON, IL	56	ATLANTA, GA	$24.76
29	MT. VERNON, IL	65	PEORIA, IL	$13.93
29	MT. VERNON, IL	66	DANVILLE, IL	$4.11
29	MT. VERNON, IL	67	CHICAGO, IL	$15.96
29	MT. VERNON, IL	68	DUBUQUE, IA	$15.98
29	MT. VERNON, IL	69	DAVENPORT, IA	$4.56
29	MT. VERNON, IL	70	ST. LOUIS, MO	$5.09
29	MT. VERNON, IL	71	LASALLE, IL	$4.77
29	MT. VERNON, IL	72	PADUCAH, KY	$4.32
29	MT. VERNON, IL	73	ROCKFORD, IL	$16.05
29	MT. VERNON, IL	74	MARION, IL	$4.32
29	MT. VERNON, IL	75	SPRINGFIELD, IL	$5.68
29	MT. VERNON, IL	76	MUNCIE, IN	$6.08
29	MT. VERNON, IL	77	EVANSVILLE, IN	$14.03
29	MT. VERNON, IL	78	LOUISVILLE, KY	$5.72
29	MT. VERNON, IL	79	CINCINNATI, OH	$5.94
29	MT. VERNON, IL	80	INDIANAPOLIS, IN	$5.43
29	MT. VERNON, IL	81	FT. WAYNE, IN	$6.81
29	MT. VERNON, IL	82	SOUTH BEND, IN	$7.04
29	MT. VERNON, IL	83	BLOOMINGTON, IN	$5.45
29	MT. VERNON, IL	84	TERRA HAUTE, IN	$4.94
29	MT. VERNON, IL	85	OMAHA, NE	$12.51
29	MT. VERNON, IL	86	SIOUX CITY, IA	$5.64
29	MT. VERNON, IL	87	SIOUX FALLS, SD	$4.71
29	MT. VERNON, IL	88	WATERLOO, IA	$9.33
29	MT. VERNON, IL	89	MASON CITY, IA	$12.19
29	MT. VERNON, IL	90	SPENCER, IA	$5.64
29	MT. VERNON, IL	92	DES MOINES, IA	$13.04
29	MT. VERNON, IL	93	CRESTON, IA	$9.54
29	MT. VERNON, IL	94	KANSAS CITY, MO	$7.42
29	MT. VERNON, IL	95	SALINA, KS	$13.46
29	MT. VERNON, IL	96	TOPEKA, KS	$9.33
29	MT. VERNON, IL	97	OAKLEY, KS	$5.28
29	MT. VERNON, IL	98	WICHITA, KS	$3.07
29	MT. VERNON, IL	99	PITTSBURG, KS	$12.40
29	MT. VERNON, IL	100	DODGE CITY, KS	$3.07
29	MT. VERNON, IL	104	ELIZABETHTOWN, KY	$4.24
29	MT. VERNON, IL	105	BOWLING GREEN, KY	$5.49
29	MT. VERNON, IL	106	NEW ORLEANS, LA	$16.32
29	MT. VERNON, IL	122	GRAND RAPIDS, MI	$9.33
29	MT. VERNON, IL	125	KALAMAZOO, MI	$8.20
29	MT. VERNON, IL	126	MARQUETTE, MI	$8.06
29	MT. VERNON, IL	127	ST. CLOUD, MN	$7.04
29	MT. VERNON, IL	128	LA CROSSE, WI	$15.96
29	MT. VERNON, IL	129	DULUTH, MN	$8.40
29	MT. VERNON, IL	131	MINNEAPOLIS, MN	$7.21
29	MT. VERNON, IL	133	WILLMAR, MN	$6.49
29	MT. VERNON, IL	137	JEFFERSON CITY, MO	$4.88
29	MT. VERNON, IL	138	CAPE GIRARDEAU, MO	$7.65
29	MT. VERNON, IL	145	LINCOLN, NE	$4.39
29	MT. VERNON, IL	154	LAS VEGAS, NM	$5.53
29	MT. VERNON, IL	184	OKLAHOMA CITY, OK	$3.16
29	MT. VERNON, IL	185	ENID, OK	$3.16
29	MT. VERNON, IL	186	TULSA, OK	$12.72
29	MT. VERNON, IL	187	BOISE CITY, OK	$5.51
29	MT. VERNON, IL	188	MCALESTER, OK	$1.23
29	MT. VERNON, IL	189	LAWTON, OK	$4.43
29	MT. VERNON, IL	208	NASHVILLE, TN	$5.15
29	MT. VERNON, IL	210	WICHITA, FALLS, TX	$4.45
29	MT. VERNON, IL	211	AMARILLO, TX	$5.51
29	MT. VERNON, IL	212	AUSTIN, TX	$5.51
29	MT. VERNON, IL	214	CORPUS CHRISTI, TX	$7.08

Table F6. Transport rates for coal shipments by regular rail—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
29	MT. VERNON, IL	215	DALLAS, TX	$3.77
29	MT. VERNON, IL	216	HOUSTON, TX	$5.02
29	MT. VERNON, IL	218	SAN ANGELO, TX	$6.59
29	MT. VERNON, IL	239	MILWAUKEE, WI	$7.21
29	MT. VERNON, IL	240	MADISON, WI	$14.84
30	TUSCOLA, IL	16	LITTLE ROCK, AR	$4.60
30	TUSCOLA, IL	17	FT. SMITH, AR	$4.60
30	TUSCOLA, IL	19	MONROE, LA	$5.68
30	TUSCOLA, IL	20	JONESBORO, AR	$4.41
30	TUSCOLA, IL	21	CLARKSVILLE, AR	$4.60
30	TUSCOLA, IL	22	SHREVEPORT, LA	$6.74
30	TUSCOLA, IL	65	PEORIA, IL	$4.88
30	TUSCOLA, IL	66	DANVILLE, IL	$3.18
30	TUSCOLA, IL	67	CHICAGO, IL	$12.15
30	TUSCOLA, IL	68	DUBUQUE, IA	$12.51
30	TUSCOLA, IL	69	DAVENPORT, IA	$4.73
30	TUSCOLA, IL	70	ST. LOUIS, MO	$5.94
30	TUSCOLA, IL	71	LASALLE, IL	$6.04
30	TUSCOLA, IL	72	PADUCAH, KY	$5.34
30	TUSCOLA, IL	73	ROCKFORD, IL	$8.76
30	TUSCOLA, IL	74	MARION, IL	$7.21
30	TUSCOLA, IL	75	SPRINGFIELD, IL	$4.94
30	TUSCOLA, IL	76	MUNCIE, IN	$7.95
30	TUSCOLA, IL	77	EVANSVILLE, IN	$7.00
30	TUSCOLA, IL	80	INDIANAPOLIS, IN	$5.51
30	TUSCOLA, IL	81	FT. WAYNE, IN	$5.41
30	TUSCOLA, IL	82	SOUTH BEND, IN	$8.90
30	TUSCOLA, IL	83	BLOOMINGTON, IN	$6.15
30	TUSCOLA, IL	84	TERRA HAUTE, IN	$4.20
30	TUSCOLA, IL	85	OMAHA, NE	$7.38
30	TUSCOLA, IL	86	SIOUX CITY, IA	$6.87
30	TUSCOLA, IL	87	SIOUX FALLS, SD	$7.29
30	TUSCOLA, IL	88	WATERLOO, IA	$4.73
30	TUSCOLA, IL	89	MASON CITY, IA	$4.73
30	TUSCOLA, IL	90	SPENCER, IA	$5.81
30	TUSCOLA, IL	91	OTTUMWA, IA	$5.79
30	TUSCOLA, IL	92	DES MOINES, IA	$5.79
30	TUSCOLA, IL	93	CRESTON, IA	$5.79
30	TUSCOLA, IL	94	KANSAS CITY, MO	$3.52
30	TUSCOLA, IL	95	SALINA, KS	$8.46
30	TUSCOLA, IL	96	TOPEKA, KS	$6.21
30	TUSCOLA, IL	97	OAKLEY, KS	$8.48
30	TUSCOLA, IL	98	WICHITA, KS	$5.68
30	TUSCOLA, IL	99	PITTSBURG, KS	$3.54
30	TUSCOLA, IL	100	DODGE CITY, KS	$5.68
30	TUSCOLA, IL	104	ELIZABETHTOWN, KY	$2.42
30	TUSCOLA, IL	105	BOWLING GREEN, KY	$6.78
30	TUSCOLA, IL	106	NEW ORLEANS, LA	$7.00
30	TUSCOLA, IL	122	GRAND RAPIDS, MI	$6.30
30	TUSCOLA, IL	123	DETROIT, MI	$6.72
30	TUSCOLA, IL	125	KALAMAZOO, MI	$6.44
30	TUSCOLA, IL	126	MARQUETTE, MI	$5.26
30	TUSCOLA, IL	127	ST. CLOUD, MN	$7.21
30	TUSCOLA, IL	128	LA CROSSE, WI	$12.72
30	TUSCOLA, IL	129	DULUTH, MN	$7.21
30	TUSCOLA, IL	130	FARGO, ND	$5.70
30	TUSCOLA, IL	131	MINNEAPOLIS, MN	$7.38
30	TUSCOLA, IL	132	THIEF RIVER FALLS,MN	$9.54
30	TUSCOLA, IL	133	WILLMAR, MN	$6.68
30	TUSCOLA, IL	137	JEFFERSON CITY, MO	$10.39
30	TUSCOLA, IL	138	CAPE GIRARDEAU, MO	$3.52
30	TUSCOLA, IL	145	LINCOLN, NE	$8.54
30	TUSCOLA, IL	172	BISMARK, ND	$9.62
30	TUSCOLA, IL	184	OKLAHOMA CITY, OK	$5.68
30	TUSCOLA, IL	185	ENID, OK	$5.68
30	TUSCOLA, IL	186	TULSA, OK	$4.60
30	TUSCOLA, IL	187	BOISE CITY, OK	$7.82
30	TUSCOLA, IL	188	MCALESTER, OK	$4.62
30	TUSCOLA, IL	189	LAWTON, OK	$6.76
30	TUSCOLA, IL	205	RAPID CITY, SD	$9.67
30	TUSCOLA, IL	206	PIERRE, SD	$9.75
30	TUSCOLA, IL	210	WICHITA, FALLS, TX	$6.76
30	TUSCOLA, IL	211	AMARILLO, TX	$7.82
30	TUSCOLA, IL	212	AUSTIN, TX	$7.84
30	TUSCOLA, IL	215	DALLAS, TX	$7.82
30	TUSCOLA, IL	216	HOUSTON, TX	$7.82
30	TUSCOLA, IL	237	GREEN BAY, WI	$12.04
30	TUSCOLA, IL	238	WAUSAU, WI	$14.61
30	TUSCOLA, IL	239	MILWAUKEE, WI	$10.39
30	TUSCOLA, IL	240	MADISON, WI	$12.51
31	HARRISBURG, IL	5	MOBILE, AL	$22.05
31	HARRISBURG, IL	7	DECATUR, AL	$18.89
31	HARRISBURG, IL	18	MEMPHIS, TN	$19.14
31	HARRISBURG, IL	20	JONESBORO, AR	$12.36

Table F6. Transport rates for coal shipments by regular rail—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
31	HARRISBURG, IL	66	DANVILLE, IL	$13.86
31	HARRISBURG, IL	68	DUBUQUE, IA	$19.06
31	HARRISBURG, IL	70	ST. LOUIS, MO	$14.42
31	HARRISBURG, IL	71	LASALLE, IL	$16.56
31	HARRISBURG, IL	72	PADUCAH, KY	$4.62
31	HARRISBURG, IL	74	MARION, IL	$13.55
31	HARRISBURG, IL	75	SPRINGFIELD, IL	$13.86
31	HARRISBURG, IL	77	EVANSVILLE, IN	$14.59
31	HARRISBURG, IL	78	LOUISVILLE, KY	$17.26
31	HARRISBURG, IL	79	CINCINNATI, OH	$20.18
31	HARRISBURG, IL	80	INDIANAPOLIS, IN	$12.00
31	HARRISBURG, IL	83	BLOOMINGTON, IN	$12.04
31	HARRISBURG, IL	84	TERRA HAUTE, IN	$9.46
31	HARRISBURG, IL	104	ELIZABETHTOWN, KY	$9.79
31	HARRISBURG, IL	105	BOWLING GREEN, KY	$11.70
31	HARRISBURG, IL	128	LA CROSSE, WI	$22.26
31	HARRISBURG, IL	137	JEFFERSON CITY, MO	$9.79
31	HARRISBURG, IL	138	CAPE GIRARDEAU, MO	$14.88
31	HARRISBURG, IL	208	NASHVILLE, TN	$17.24
31	HARRISBURG, IL	238	WAUSAU, WI	$21.20
31	HARRISBURG, IL	239	MILWAUKEE, WI	$17.53
32	SULLIVAN, IN	17	FT. SMITH, AR	$14.46
32	SULLIVAN, IN	20	JONESBORO, AR	$14.50
32	SULLIVAN, IN	65	PEORIA, IL	$11.55
32	SULLIVAN, IN	66	DANVILLE, IL	$8.42
32	SULLIVAN, IN	67	CHICAGO, IL	$14.46
32	SULLIVAN, IN	69	DAVENPORT, IA	$13.63
32	SULLIVAN, IN	70	ST. LOUIS, MO	$13.14
32	SULLIVAN, IN	71	LASALLE, IL	$13.65
32	SULLIVAN, IN	72	PADUCAH, KY	$14.10
32	SULLIVAN, IN	73	ROCKFORD, IL	$13.65
32	SULLIVAN, IN	74	MARION, IL	$12.59
32	SULLIVAN, IN	75	SPRINGFIELD, IL	$10.94
32	SULLIVAN, IN	76	MUNCIE, IN	$11.60
32	SULLIVAN, IN	77	EVANSVILLE, IN	$9.14
32	SULLIVAN, IN	78	LOUISVILLE, KY	$22.98
32	SULLIVAN, IN	80	INDIANAPOLIS, IN	$8.48
32	SULLIVAN, IN	81	FT. WAYNE, IN	$14.14
32	SULLIVAN, IN	82	SOUTH BEND, IN	$14.23
32	SULLIVAN, IN	83	BLOOMINGTON, IN	$9.16
32	SULLIVAN, IN	84	TERRA HAUTE, IN	$9.33
32	SULLIVAN, IN	99	PITTSBURG, KS	$14.48
32	SULLIVAN, IN	104	ELIZABETHTOWN, KY	$10.37
32	SULLIVAN, IN	122	GRAND RAPIDS, MI	$16.54
32	SULLIVAN, IN	131	MINNEAPOLIS, MN	$21.58
32	SULLIVAN, IN	137	JEFFERSON CITY, MO	$11.98
32	SULLIVAN, IN	138	CAPE GIRARDEAU, MO	$14.48
32	SULLIVAN, IN	188	MCALESTER, OK	$14.46
32	SULLIVAN, IN	237	GREEN BAY, WI	$14.48
32	SULLIVAN, IN	238	WAUSAU, WI	$17.00
32	SULLIVAN, IN	239	MILWAUKEE, WI	$11.98
32	SULLIVAN, IN	240	MADISON, WI	$14.50
33	MORGANFIELD, KY	5	MOBILE, AL	$18.19
33	MORGANFIELD, KY	7	DECATUR, AL	$16.43
33	MORGANFIELD, KY	56	ATLANTA, GA	$17.62
33	MORGANFIELD, KY	65	PEORIA, IL	$17.32
33	MORGANFIELD, KY	68	DUBUQUE, IA	$18.51
33	MORGANFIELD, KY	69	DAVENPORT, IA	$18.51
33	MORGANFIELD, KY	70	ST. LOUIS, MO	$16.90
33	MORGANFIELD, KY	72	PADUCAH, KY	$8.82
33	MORGANFIELD, KY	73	ROCKFORD, IL	$17.60
33	MORGANFIELD, KY	75	SPRINGFIELD, IL	$16.83
33	MORGANFIELD, KY	77	EVANSVILLE, IN	$8.10
33	MORGANFIELD, KY	78	LOUISVILLE, KY	$8.97
33	MORGANFIELD, KY	79	CINCINNATI, OH	$17.62
33	MORGANFIELD, KY	80	INDIANAPOLIS, IN	$8.23
33	MORGANFIELD, KY	83	BLOOMINGTON, IN	$8.99
33	MORGANFIELD, KY	84	TERRA HAUTE, IN	$7.50
33	MORGANFIELD, KY	88	WATERLOO, IA	$18.51
33	MORGANFIELD, KY	101	HAZARD, KY	$18.55
33	MORGANFIELD, KY	102	LEXINGTON, KY	$8.63
33	MORGANFIELD, KY	104	ELIZABETHTOWN, KY	$6.49
33	MORGANFIELD, KY	105	BOWLING GREEN, KY	$8.61
33	MORGANFIELD, KY	137	JEFFERSON CITY, MO	$6.49
33	MORGANFIELD, KY	208	NASHVILLE, TN	$8.99
34	MADISONVILLE, KY	5	MOBILE, AL	$17.98
34	MADISONVILLE, KY	7	DECATUR, AL	$5.83
34	MADISONVILLE, KY	18	MEMPHIS, TN	$16.41
34	MADISONVILLE, KY	52	TAMPA, FL	$31.59
34	MADISONVILLE, KY	55	CHATTANOOGA, TN	$18.83
34	MADISONVILLE, KY	56	ATLANTA, GA	$16.56
34	MADISONVILLE, KY	68	DUBUQUE, IA	$18.00
34	MADISONVILLE, KY	72	PADUCAH, KY	$5.91
34	MADISONVILLE, KY	75	SPRINGFIELD, IL	$16.60

Table F6. Transport rates for coal shipments by regular rail—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
34	MADISONVILLE, KY	77	EVANSVILLE, IN	$8.59
34	MADISONVILLE, KY	78	LOUISVILLE, KY	$8.84
34	MADISONVILLE, KY	79	CINCINNATI, OH	$16.85
34	MADISONVILLE, KY	80	INDIANAPOLIS, IN	$9.46
34	MADISONVILLE, KY	83	BLOOMINGTON, IN	$8.90
34	MADISONVILLE, KY	84	TERRA HAUTE, IN	$7.91
34	MADISONVILLE, KY	101	HAZARD, KY	$15.69
34	MADISONVILLE, KY	102	LEXINGTON, KY	$8.56
34	MADISONVILLE, KY	104	ELIZABETHTOWN, KY	$6.87
34	MADISONVILLE, KY	105	BOWLING GREEN, KY	$8.54
34	MADISONVILLE, KY	122	GRAND RAPIDS, MI	$18.04
34	MADISONVILLE, KY	137	JEFFERSON CITY, MO	$6.42
34	MADISONVILLE, KY	208	NASHVILLE, TN	$6.42
34	MADISONVILLE, KY	237	GREEN BAY, WI	$18.97
34	MADISONVILLE, KY	238	WAUSAU, WI	$19.57
34	MADISONVILLE, KY	239	MILWAUKEE, WI	$20.01
34	MADISONVILLE, KY	240	MADISON, WI	$18.57
37	MARSHALL, TX	19	MONROE, LA	$7.38
37	MARSHALL, TX	22	SHREVEPORT, LA	$4.56
37	MARSHALL, TX	215	DALLAS, TX	$6.36
38	MT. PLEASANT, TX	16	LITTLE ROCK, AR	$4.73
38	MT. PLEASANT, TX	21	CLARKSVILLE, AR	$4.73
38	MT. PLEASANT, TX	22	SHREVEPORT, LA	$4.66
38	MT. PLEASANT, TX	215	DALLAS, TX	$5.30
39	FAIRFIELD, TX	189	LAWTON, OK	$12.53
39	FAIRFIELD, TX	210	WICHITA, FALLS, TX	$12.55
39	FAIRFIELD, TX	212	AUSTIN, TX	$21.20
39	FAIRFIELD, TX	215	DALLAS, TX	$14.20
39	FAIRFIELD, TX	216	HOUSTON, TX	$21.20
39	FAIRFIELD, TX	218	SAN ANGELO, TX	$12.49
40	SAN ANTONIO, TX	211	AMARILLO, TX	$10.66
40	SAN ANTONIO, TX	212	AUSTIN, TX	$4.24
40	SAN ANTONIO, TX	213	LAREDO, TX	$4.24
40	SAN ANTONIO, TX	214	CORPUS CHRISTI, TX	$4.24
40	SAN ANTONIO, TX	215	DALLAS, TX	$9.50
40	SAN ANTONIO, TX	216	HOUSTON, TX	$8.73
40	SAN ANTONIO, TX	217	SAN ANTONIO, TX	$4.26
40	SAN ANTONIO, TX	218	SAN ANGELO, TX	$11.81
43	POTEAU, OK	5	MOBILE, AL	$19.69
43	POTEAU, OK	16	LITTLE ROCK, AR	$7.21
43	POTEAU, OK	17	FT. SMITH, AR	$6.68
43	POTEAU, OK	18	MEMPHIS, TN	$13.44
43	POTEAU, OK	19	MONROE, LA	$11.89
43	POTEAU, OK	20	JONESBORO, AR	$8.76
43	POTEAU, OK	21	CLARKSVILLE, AR	$3.52
43	POTEAU, OK	22	SHREVEPORT, LA	$11.89
43	POTEAU, OK	70	ST. LOUIS, MO	$8.90
43	POTEAU, OK	74	MARION, IL	$13.44
43	POTEAU, OK	87	SIOUX FALLS, SD	$14.18
43	POTEAU, OK	94	KANSAS CITY, MO	$11.87
43	POTEAU, OK	95	SALINA, KS	$11.89
43	POTEAU, OK	96	TOPEKA, KS	$11.89
43	POTEAU, OK	97	OAKLEY, KS	$11.89
43	POTEAU, OK	98	WICHITA, KS	$11.89
43	POTEAU, OK	99	PITTSBURG, KS	$1.89
43	POTEAU, OK	100	DODGE CITY, KS	$11.89
43	POTEAU, OK	134	GREENVILLE, MS	$13.53
43	POTEAU, OK	136	GREENSBORO, NC	$13.44
43	POTEAU, OK	137	JEFFERSON CITY, MO	$11.89
43	POTEAU, OK	138	CAPE GIRARDEAU, MO	$4.71
43	POTEAU, OK	145	LINCOLN, NE	$12.89
43	POTEAU, OK	184	OKLAHOMA CITY, OK	$8.27
43	POTEAU, OK	185	ENID, OK	$11.02
43	POTEAU, OK	186	TULSA, OK	$6.68
43	POTEAU, OK	188	MCALESTER, OK	$6.68
43	POTEAU, OK	189	LAWTON, OK	$11.89
43	POTEAU, OK	209	JACKSON, TN	$13.44
43	POTEAU, OK	210	WICHITA, FALLS, TX	$11.89
43	POTEAU, OK	215	DALLAS, TX	$10.24
46	MUSKOGEE, OK	21	CLARKSVILLE, AR	$5.91
46	MUSKOGEE, OK	52	TAMPA, FL	$32.54
46	MUSKOGEE, OK	68	DUBUQUE, IA	$18.19
46	MUSKOGEE, OK	94	KANSAS CITY, MO	$9.29
46	MUSKOGEE, OK	95	SALINA, KS	$5.70
46	MUSKOGEE, OK	97	OAKLEY, KS	$5.70
46	MUSKOGEE, OK	98	WICHITA, KS	$9.12
46	MUSKOGEE, OK	99	PITTSBURG, KS	$5.60
46	MUSKOGEE, OK	100	DODGE CITY, KS	$4.13
46	MUSKOGEE, OK	138	CAPE GIRARDEAU, MO	$5.60
46	MUSKOGEE, OK	139	SPRINGFIELD, MO	$27.41
46	MUSKOGEE, OK	145	LINCOLN, NE	$12.49
46	MUSKOGEE, OK	184	OKLAHOMA CITY, OK	$3.14
46	MUSKOGEE, OK	185	ENID, OK	$3.14
47	PITTSBURGH, KS	17	FT. SMITH, AR	$8.12

Table F6. Transport rates for coal shipments by regular rail—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
47	PITTSBURGH, KS	94	KANSAS CITY, MO	$5.64
47	PITTSBURGH, KS	98	WICHITA, KS	$6.55
47	PITTSBURGH, KS	99	PITTSBURG, KS	$1.04
47	PITTSBURGH, KS	139	SPRINGFIELD, MO	$27.37
47	PITTSBURGH, KS	188	MCALESTER, OK	$8.12
48	CLINTON, MO	92	DES MOINES, IA	$6.34
48	CLINTON, MO	94	KANSAS CITY, MO	$5.89
48	CLINTON, MO	95	SALINA, KS	$6.23
48	CLINTON, MO	96	TOPEKA, KS	$5.87
48	CLINTON, MO	97	OAKLEY, KS	$6.17
48	CLINTON, MO	98	WICHITA, KS	$10.37
48	CLINTON, MO	139	SPRINGFIELD, MO	$22.62
49	MACON, MO	70	ST. LOUIS, MO	$2.88
49	MACON, MO	88	WATERLOO, IA	$12.04
49	MACON, MO	94	KANSAS CITY, MO	$2.88
49	MACON, MO	96	TOPEKA, KS	$2.88
49	MACON, MO	137	JEFFERSON CITY, MO	$12.04
49	MACON, MO	139	SPRINGFIELD, MO	$24.51
51	MOUND CITY, KS	98	WICHITA, KS	$5.72
56	ALBIA, IA	69	DAVENPORT, IA	$2.95
56	ALBIA, IA	85	OMAHA, NE	$6.59
56	ALBIA, IA	87	SIOUX FALLS, SD	$4.75
56	ALBIA, IA	88	WATERLOO, IA	$4.60
56	ALBIA, IA	89	MASON CITY, IA	$4.60
56	ALBIA, IA	90	SPENCER, IA	$4.73
56	ALBIA, IA	91	OTTUMWA, IA	$5.77
56	ALBIA, IA	92	DES MOINES, IA	$5.77
56	ALBIA, IA	93	CRESTON, IA	$5.77
56	ALBIA, IA	94	KANSAS CITY, MO	$8.06
56	ALBIA, IA	95	SALINA, KS	$5.58
56	ALBIA, IA	96	TOPEKA, KS	$4.64
56	ALBIA, IA	97	OAKLEY, KS	$5.58
56	ALBIA, IA	145	LINCOLN, NE	$5.58
57	WINSLOW, AZ	12	LORDSBURG, NM	$14.03
57	WINSLOW, AZ	13	LAS VEGAS, NV	$18.32
57	WINSLOW, AZ	14	FLAGSTAFF, AZ	$18.91
57	WINSLOW, AZ	152	ALBUQUERQUE, NM	$14.06
57	WINSLOW, AZ	155	CLOVIS, NM	$11.36
57	WINSLOW, AZ	211	AMARILLO, TX	$10.39
61	RATON, NM	12	LORDSBURG, NM	$11.47
61	RATON, NM	24	LOS ANGELES, CA	$41.95
61	RATON, NM	34	LA JUNTA, CO	$15.18
61	RATON, NM	38	PUEBLO, CO	$15.22
61	RATON, NM	39	ALAMOSA, CO	$15.18
61	RATON, NM	152	ALBUQUERQUE, NM	$11.47
61	RATON, NM	153	EL PASO, TX	$8.56
61	RATON, NM	154	LAS VEGAS, NM	$11.47
61	RATON, NM	155	CLOVIS, NM	$11.47
61	RATON, NM	156	SOCORRO NM	$8.56
61	RATON, NM	157	SANTE FE, NM	$8.48
61	RATON, NM	184	OKLAHOMA CITY, OK	$14.97
61	RATON, NM	185	ENID, OK	$14.97
61	RATON, NM	187	BOISE CITY, OK	$11.47
61	RATON, NM	211	AMARILLO, TX	$11.47
61	RATON, NM	213	LAREDO, TX	$21.22
61	RATON, NM	218	SAN ANGELO, TX	$14.97
62	GUNNISON, CO	24	LOS ANGELES, CA	$31.67
62	GUNNISON, CO	29	SAN DIEGO, CA	$24.42
62	GUNNISON, CO	34	LA JUNTA, CO	$7.42
62	GUNNISON, CO	35	GRAND JUNCTION, CO	$10.60
62	GUNNISON, CO	36	DENVER, CO	$11.98
62	GUNNISON, CO	37	GREELEY, CO	$11.98
62	GUNNISON, CO	38	PUEBLO, CO	$5.85
62	GUNNISON, CO	39	ALAMOSA, CO	$8.84
62	GUNNISON, CO	61	POCATELLO, ID	$18.19
62	GUNNISON, CO	63	TWIN FALLS, ID	$29.68
62	GUNNISON, CO	94	KANSAS CITY, MO	$18.19
62	GUNNISON, CO	95	SALINA, KS	$15.07
62	GUNNISON, CO	96	TOPEKA, KS	$18.19
62	GUNNISON, CO	97	OAKLEY, KS	$15.09
62	GUNNISON, CO	98	WICHITA, KS	$15.07
62	GUNNISON, CO	100	DODGE CITY, KS	$15.09
62	GUNNISON, CO	144	MISSOULA, MT	$18.19
62	GUNNISON, CO	145	LINCOLN, NE	$17.41
62	GUNNISON, CO	146	GRAND ISLAND, NE	$24.44
62	GUNNISON, CO	157	SANTE FE, NM	$52.55
62	GUNNISON, CO	184	OKLAHOMA CITY, OK	$18.19
62	GUNNISON, CO	185	ENID, OK	$18.19
62	GUNNISON, CO	187	BOISE CITY, OK	$18.21
62	GUNNISON, CO	189	LAWTON, OK	$18.19
62	GUNNISON, CO	210	WICHITA, FALLS, TX	$27.56
62	GUNNISON, CO	219	MORGAN, UT	$25.44
62	GUNNISON, CO	220	SALT LAKE CITY, UT	$15.26
62	GUNNISON, CO	241	CASPER, WY	$16.96

Table F6. Transport rates for coal shipments by regular rail—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
62	GUNNISON, CO	242	CHEYENNE, WY	$11.98
62	GUNNISON, CO	243	ROCK SPRINGS, WY	$25.44
63	STEAMBOAT SPRINGS, CO	34	LA JUNTA, CO	$8.95
63	STEAMBOAT SPRINGS, CO	35	GRAND JUNCTION, CO	$8.95
63	STEAMBOAT SPRINGS, CO	36	DENVER, CO	$10.41
63	STEAMBOAT SPRINGS, CO	38	PUEBLO, CO	$9.16
63	STEAMBOAT SPRINGS, CO	39	ALAMOSA, CO	$8.95
63	STEAMBOAT SPRINGS, CO	40	STEAMBOAT SPRINGS,CO	$4.24
63	STEAMBOAT SPRINGS, CO	157	SANTE FE, NM	$52.66
63	STEAMBOAT SPRINGS, CO	219	MORGAN, UT	$8.93
63	STEAMBOAT SPRINGS, CO	220	SALT LAKE CITY, UT	$8.95
63	STEAMBOAT SPRINGS, CO	243	ROCK SPRINGS, WY	$8.93
66	RAWLINS, WY	34	LA JUNTA, CO	$19.08
66	RAWLINS, WY	36	DENVER, CO	$11.58
66	RAWLINS, WY	37	GREELEY, CO	$10.60
66	RAWLINS, WY	38	PUEBLO, CO	$8.93
66	RAWLINS, WY	39	ALAMOSA, CO	$21.20
66	RAWLINS, WY	145	LINCOLN, NE	$23.32
66	RAWLINS, WY	146	GRAND ISLAND, NE	$33.71
66	RAWLINS, WY	205	RAPID CITY, SD	$23.32
66	RAWLINS, WY	206	PIERRE, SD	$30.13
67	SHERIDAN & JOHNSON CTY, WY	34	LA JUNTA, CO	$8.80
67	SHERIDAN & JOHNSON CTY, WY	35	GRAND JUNCTION, CO	$11.94
67	SHERIDAN & JOHNSON CTY, WY	36	DENVER, CO	$19.93
67	SHERIDAN & JOHNSON CTY, WY	37	GREELEY, CO	$5.58
67	SHERIDAN & JOHNSON CTY, WY	38	PUEBLO, CO	$23.32
67	SHERIDAN & JOHNSON CTY, WY	39	ALAMOSA, CO	$8.80
67	SHERIDAN & JOHNSON CTY, WY	40	STEAMBOAT SPRINGS,CO	$11.94
67	SHERIDAN & JOHNSON CTY, WY	65	PEORIA, IL	$28.98
67	SHERIDAN & JOHNSON CTY, WY	67	CHICAGO, IL	$32.10
67	SHERIDAN & JOHNSON CTY, WY	85	OMAHA, NE	$15.05
67	SHERIDAN & JOHNSON CTY, WY	86	SIOUX CITY, IA	$15.05
67	SHERIDAN & JOHNSON CTY, WY	87	SIOUX FALLS, SD	$15.84
67	SHERIDAN & JOHNSON CTY, WY	95	SALINA, KS	$15.05
67	SHERIDAN & JOHNSON CTY, WY	97	OAKLEY, KS	$15.05
67	SHERIDAN & JOHNSON CTY, WY	98	WICHITA, KS	$15.05
67	SHERIDAN & JOHNSON CTY, WY	100	DODGE CITY, KS	$15.05
67	SHERIDAN & JOHNSON CTY, WY	133	WILLMAR, MN	$15.05
67	SHERIDAN & JOHNSON CTY, WY	139	SPRINGFIELD, MO	$15.84
67	SHERIDAN & JOHNSON CTY, WY	142	HELENA, MT	$15.84
67	SHERIDAN & JOHNSON CTY, WY	144	MISSOULA, MT	$15.05
67	SHERIDAN & JOHNSON CTY, WY	145	LINCOLN, NE	$9.60
67	SHERIDAN & JOHNSON CTY, WY	148	RENO, NV	$55.61
67	SHERIDAN & JOHNSON CTY, WY	205	RAPID CITY, SD	$14.63
67	SHERIDAN & JOHNSON CTY, WY	206	PIERRE, SD	$18.66
67	SHERIDAN & JOHNSON CTY, WY	241	CASPER, WY	$15.84
67	SHERIDAN & JOHNSON CTY, WY	242	CHEYENNE, WY	$15.84
68	ROCK SPRINGS, WY	13	LAS VEGAS, NV	$24.34
68	ROCK SPRINGS, WY	14	FLAGSTAFF, AZ	$27.45
68	ROCK SPRINGS, WY	15	PHOENIX, AZ	$27.45
68	ROCK SPRINGS, WY	17	FT. SMITH, AR	$30.59
68	ROCK SPRINGS, WY	23	LONE PINE, CA	$24.34
68	ROCK SPRINGS, WY	24	LOS ANGELES, CA	$26.80
68	ROCK SPRINGS, WY	25	SALINAS, CA	$24.34
68	ROCK SPRINGS, WY	26	EUREKA, CA	$24.34
68	ROCK SPRINGS, WY	27	WESTWOOD, CA	$24.34
68	ROCK SPRINGS, WY	28	SACRAMENTO, CA	$24.34
68	ROCK SPRINGS, WY	29	SAN DIEGO, CA	$21.22
68	ROCK SPRINGS, WY	30	SAN FRANCISCO, CA	$26.80
68	ROCK SPRINGS, WY	31	FRESNO, CA	$23.85
68	ROCK SPRINGS, WY	32	SAN LUIS OBISPO, CA	$24.34
68	ROCK SPRINGS, WY	33	SAN BERNADINO, CA	$24.34
68	ROCK SPRINGS, WY	34	LA JUNTA, CO	$18.08
68	ROCK SPRINGS, WY	35	GRAND JUNCTION, CO	$8.71
68	ROCK SPRINGS, WY	36	DENVER, CO	$20.48
68	ROCK SPRINGS, WY	37	GREELEY, CO	$20.48
68	ROCK SPRINGS, WY	38	PUEBLO, CO	$18.08
68	ROCK SPRINGS, WY	39	ALAMOSA, CO	$18.08
68	ROCK SPRINGS, WY	40	STEAMBOAT SPRINGS,CO	$8.71
68	ROCK SPRINGS, WY	61	POCATELLO, ID	$15.01
68	ROCK SPRINGS, WY	62	SPOKANE, WA	$30.57
68	ROCK SPRINGS, WY	63	TWIN FALLS, ID	$15.01
68	ROCK SPRINGS, WY	64	BOISE, ID	$18.13
68	ROCK SPRINGS, WY	94	KANSAS CITY, MO	$27.45
68	ROCK SPRINGS, WY	95	SALINA, KS	$24.34
68	ROCK SPRINGS, WY	96	TOPEKA, KS	$27.45
68	ROCK SPRINGS, WY	97	OAKLEY, KS	$24.34
68	ROCK SPRINGS, WY	139	SPRINGFIELD, MO	$28.66
68	ROCK SPRINGS, WY	140	BILLINGS, MT	$23.87
68	ROCK SPRINGS, WY	141	GREAT FALLS, MT	$23.87
68	ROCK SPRINGS, WY	142	HELENA, MT	$28.66
68	ROCK SPRINGS, WY	143	MILES CITY, MT	$20.78
68	ROCK SPRINGS, WY	145	LINCOLN, NE	$29.76
68	ROCK SPRINGS, WY	146	GRAND ISLAND, NE	$19.82

Table F6. Transport rates for coal shipments by regular rail—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
68	ROCK SPRINGS, WY	147	WINNEMUCA, NV	$19.82
68	ROCK SPRINGS, WY	153	EL PASO, TX	$28.79
68	ROCK SPRINGS, WY	156	SOCORRO NM	$28.79
68	ROCK SPRINGS, WY	184	OKLAHOMA CITY, OK	$27.45
68	ROCK SPRINGS, WY	185	ENID, OK	$27.45
68	ROCK SPRINGS, WY	186	TULSA, OK	$30.59
68	ROCK SPRINGS, WY	188	MCALESTER, OK	$30.59
68	ROCK SPRINGS, WY	190	BEND, OR	$29.55
68	ROCK SPRINGS, WY	191	PENDLETON, OR	$30.61
68	ROCK SPRINGS, WY	192	ASTORIA, OR	$29.55
68	ROCK SPRINGS, WY	193	PORTLAND, OR	$29.55
68	ROCK SPRINGS, WY	194	MEDFORD, OR	$27.24
68	ROCK SPRINGS, WY	205	RAPID CITY, SD	$30.59
68	ROCK SPRINGS, WY	206	PIERRE, SD	$30.59
68	ROCK SPRINGS, WY	219	MORGAN, UT	$7.42
68	ROCK SPRINGS, WY	220	SALT LAKE CITY, UT	$8.71
68	ROCK SPRINGS, WY	227	WENATCHEE, WA	$30.59
68	ROCK SPRINGS, WY	230	YAKIMA, WA	$30.59
68	ROCK SPRINGS, WY	241	CASPER, WY	$21.86
68	ROCK SPRINGS, WY	242	CHEYENNE, WY	$21.86
68	ROCK SPRINGS, WY	243	ROCK SPRINGS, WY	$7.42
70	PRICE, UT	13	LAS VEGAS, NV	$16.96
70	PRICE, UT	14	FLAGSTAFF, AZ	$27.41
70	PRICE, UT	15	PHOENIX, AZ	$27.50
70	PRICE, UT	17	FT. SMITH, AR	$30.66
70	PRICE, UT	23	LONE PINE, CA	$24.40
70	PRICE, UT	24	LOS ANGELES, CA	$26.78
70	PRICE, UT	25	SALINAS, CA	$24.40
70	PRICE, UT	26	EUREKA, CA	$24.38
70	PRICE, UT	27	WESTWOOD, CA	$24.40
70	PRICE, UT	28	SACRAMENTO, CA	$24.40
70	PRICE, UT	29	SAN DIEGO, CA	$21.28
70	PRICE, UT	30	SAN FRANCISCO, CA	$26.84
70	PRICE, UT	31	FRESNO, CA	$23.93
70	PRICE, UT	32	SAN LUIS OBISPO, CA	$24.38
70	PRICE, UT	33	SAN BERNADINO, CA	$24.80
70	PRICE, UT	34	LA JUNTA, CO	$18.15
70	PRICE, UT	35	GRAND JUNCTION, CO	$5.87
70	PRICE, UT	36	DENVER, CO	$20.54
70	PRICE, UT	37	GREELEY, CO	$20.54
70	PRICE, UT	38	PUEBLO, CO	$18.04
70	PRICE, UT	39	ALAMOSA, CO	$18.15
70	PRICE, UT	40	STEAMBOAT SPRINGS,CO	$8.78
70	PRICE, UT	61	POCATELLO, ID	$15.01
70	PRICE, UT	62	SPOKANE, WA	$30.70
70	PRICE, UT	63	TWIN FALLS, ID	$14.99
70	PRICE, UT	64	BOISE, ID	$18.06
70	PRICE, UT	79	CINCINNATI, OH	$52.45
70	PRICE, UT	94	KANSAS CITY, MO	$27.50
70	PRICE, UT	95	SALINA, KS	$24.40
70	PRICE, UT	96	TOPEKA, KS	$27.50
70	PRICE, UT	97	OAKLEY, KS	$24.40
70	PRICE, UT	139	SPRINGFIELD, MO	$28.73
70	PRICE, UT	140	BILLINGS, MT	$23.93
70	PRICE, UT	141	GREAT FALLS, MT	$23.93
70	PRICE, UT	142	HELENA, MT	$28.64
70	PRICE, UT	143	MILES CITY, MT	$20.82
70	PRICE, UT	145	LINCOLN, NE	$29.83
70	PRICE, UT	146	GRAND ISLAND, NE	$19.89
70	PRICE, UT	147	WINNEMUCA, NV	$19.86
70	PRICE, UT	153	EL PASO, TX	$28.85
70	PRICE, UT	156	SOCORRO NM	$28.85
70	PRICE, UT	184	OKLAHOMA CITY, OK	$27.50
70	PRICE, UT	185	ENID, OK	$27.50
70	PRICE, UT	186	TULSA, OK	$30.66
70	PRICE, UT	188	MCALESTER, OK	$30.66
70	PRICE, UT	190	BEND, OR	$29.51
70	PRICE, UT	191	PENDLETON, OR	$30.63
70	PRICE, UT	192	ASTORIA, OR	$29.60
70	PRICE, UT	193	PORTLAND, OR	$29.60
70	PRICE, UT	194	MEDFORD, OR	$27.31
70	PRICE, UT	205	RAPID CITY, SD	$30.66
70	PRICE, UT	206	PIERRE, SD	$30.66
70	PRICE, UT	219	MORGAN, UT	$5.87
70	PRICE, UT	220	SALT LAKE CITY, UT	$5.87
70	PRICE, UT	227	WENATCHEE, WA	$30.59
70	PRICE, UT	230	YAKIMA, WA	$30.72
70	PRICE, UT	241	CASPER, WY	$21.90
70	PRICE, UT	242	CHEYENNE, WY	$21.90
70	PRICE, UT	243	ROCK SPRINGS, WY	$8.78
75	FORSYTH, MT	139	SPRINGFIELD, MO	$12.76
75	FORSYTH, MT	140	BILLINGS, MT	$10.47
75	FORSYTH, MT	141	GREAT FALLS, MT	$10.47
75	FORSYTH, MT	142	HELENA, MT	$12.76

Table F6. Transport rates for coal shipments by regular rail—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
75	FORSYTH, MT	148	RENO, NV	$55.37
75	FORSYTH, MT	172	BISMARK, ND	$14.33
75	FORSYTH, MT	205	RAPID CITY, SD	$11.74
75	FORSYTH, MT	206	PIERRE, SD	$11.83
80	MINOT, ND	87	SIOUX FALLS, SD	$15.05
80	MINOT, ND	127	ST. CLOUD, MN	$15.05
80	MINOT, ND	129	DULUTH, MN	$15.31
80	MINOT, ND	130	FARGO, ND	$8.71
80	MINOT, ND	131	MINNEAPOLIS, MN	$15.05
80	MINOT, ND	132	THIEF RIVER FALLS,MN	$8.84
80	MINOT, ND	133	WILLMAR, MN	$15.01
80	MINOT, ND	139	SPRINGFIELD, MO	$15.20
80	MINOT, ND	140	BILLINGS, MT	$15.05
80	MINOT, ND	141	GREAT FALLS, MT	$15.05
80	MINOT, ND	142	HELENA, MT	$15.22
80	MINOT, ND	148	RENO, NV	$49.35
80	MINOT, ND	172	BISMARK, ND	$8.06
87	CENTRALIA, WA	62	SPOKANE, WA	$14.03
87	CENTRALIA, WA	64	BOISE, ID	$19.89
87	CENTRALIA, WA	190	BEND, OR	$14.73
87	CENTRALIA, WA	191	PENDLETON, OR	$13.76
87	CENTRALIA, WA	192	ASTORIA, OR	$11.87
87	CENTRALIA, WA	193	PORTLAND, OR	$11.91
87	CENTRALIA, WA	194	MEDFORD, OR	$17.91
87	CENTRALIA, WA	227	WENATCHEE, WA	$14.08
87	CENTRALIA, WA	228	OLYMPIA, WA	$11.94
87	CENTRALIA, WA	229	SEATTLE, WA	$11.91
87	CENTRALIA, WA	230	YAKIMA, WA	$13.78
90	SAN JUAN CTY, NM	12	LORDSBURG, NM	$11.47
90	SAN JUAN CTY, NM	13	LAS VEGAS, NV	$21.18
90	SAN JUAN CTY, NM	14	FLAGSTAFF, AZ	$15.50
90	SAN JUAN CTY, NM	15	PHOENIX, AZ	$18.04
90	SAN JUAN CTY, NM	34	LA JUNTA, CO	$18.08
90	SAN JUAN CTY, NM	35	GRAND JUNCTION, CO	$21.16
90	SAN JUAN CTY, NM	38	PUEBLO, CO	$18.06
90	SAN JUAN CTY, NM	39	ALAMOSA, CO	$18.08
90	SAN JUAN CTY, NM	40	STEAMBOAT SPRINGS,CO	$21.16
90	SAN JUAN CTY, NM	95	SALINA, KS	$17.72
90	SAN JUAN CTY, NM	97	OAKLEY, KS	$17.72
90	SAN JUAN CTY, NM	98	WICHITA, KS	$18.08
90	SAN JUAN CTY, NM	100	DODGE CITY, KS	$18.08
90	SAN JUAN CTY, NM	152	ALBUQUERQUE, NM	$11.47
90	SAN JUAN CTY, NM	153	EL PASO, TX	$11.47
90	SAN JUAN CTY, NM	154	LAS VEGAS, NM	$11.47
90	SAN JUAN CTY, NM	155	CLOVIS, NM	$8.56
90	SAN JUAN CTY, NM	156	SOCORRO NM	$11.47
90	SAN JUAN CTY, NM	157	SANTE FE, NM	$49.54
90	SAN JUAN CTY, NM	184	OKLAHOMA CITY, OK	$14.97
90	SAN JUAN CTY, NM	185	ENID, OK	$14.97
90	SAN JUAN CTY, NM	186	TULSA, OK	$18.08
90	SAN JUAN CTY, NM	187	BOISE CITY, OK	$11.47
90	SAN JUAN CTY, NM	189	LAWTON, OK	$18.08
90	SAN JUAN CTY, NM	210	WICHITA, FALLS, TX	$18.08
90	SAN JUAN CTY, NM	211	AMARILLO, TX	$11.47
90	SAN JUAN CTY, NM	215	DALLAS, TX	$19.65
90	SAN JUAN CTY, NM	217	SAN ANTONIO, TX	$18.04
90	SAN JUAN CTY, NM	218	SAN ANGELO, TX	$14.97
91	MCKINLEY CTY, NM	12	LORDSBURG, NM	$11.47
91	MCKINLEY CTY, NM	14	FLAGSTAFF, AZ	$15.50
91	MCKINLEY CTY, NM	24	LOS ANGELES, CA	$41.95
91	MCKINLEY CTY, NM	95	SALINA, KS	$17.72
91	MCKINLEY CTY, NM	97	OAKLEY, KS	$17.72
91	MCKINLEY CTY, NM	152	ALBUQUERQUE, NM	$11.47
91	MCKINLEY CTY, NM	153	EL PASO, TX	$11.47
91	MCKINLEY CTY, NM	154	LAS VEGAS, NM	$11.47
91	MCKINLEY CTY, NM	155	CLOVIS, NM	$8.56
91	MCKINLEY CTY, NM	156	SOCORRO NM	$11.47
91	MCKINLEY CTY, NM	157	SANTE FE, NM	$49.54
91	MCKINLEY CTY, NM	184	OKLAHOMA CITY, OK	$14.97
91	MCKINLEY CTY, NM	185	ENID, OK	$14.97
91	MCKINLEY CTY, NM	187	BOISE CITY, OK	$11.47
91	MCKINLEY CTY, NM	211	AMARILLO, TX	$11.47
91	MCKINLEY CTY, NM	218	SAN ANGELO, TX	$14.97
92	CARBON CTY, WY	34	LA JUNTA, CO	$14.84
92	CARBON CTY, WY	35	GRAND JUNCTION, CO	$17.38
92	CARBON CTY, WY	36	DENVER, CO	$8.06
92	CARBON CTY, WY	37	GREELEY, CO	$5.55
92	CARBON CTY, WY	38	PUEBLO, CO	$10.60
92	CARBON CTY, WY	39	ALAMOSA, CO	$16.96
92	CARBON CTY, WY	40	STEAMBOAT SPRINGS,CO	$14.84
92	CARBON CTY, WY	67	CHICAGO, IL	$32.78
92	CARBON CTY, WY	73	ROCKFORD, IL	$27.73
92	CARBON CTY, WY	86	SIOUX CITY, IA	$19.50
92	CARBON CTY, WY	95	SALINA, KS	$19.08

Table F6. Transport rates for coal shipments by regular rail—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
92	CARBON CTY, WY	145	LINCOLN, NE	$17.38
92	CARBON CTY, WY	205	RAPID CITY, SD	$17.38
92	CARBON CTY, WY	206	PIERRE, SD	$19.08
93	MOFFAT & ROUTT CTY, CO	13	LAS VEGAS, NV	$27.67
93	MOFFAT & ROUTT CTY, CO	16	LITTLE ROCK, AR	$27.64
93	MOFFAT & ROUTT CTY, CO	17	FT. SMITH, AR	$24.55
93	MOFFAT & ROUTT CTY, CO	21	CLARKSVILLE, AR	$27.64
93	MOFFAT & ROUTT CTY, CO	23	LONE PINE, CA	$27.64
93	MOFFAT & ROUTT CTY, CO	25	SALINAS, CA	$27.64
93	MOFFAT & ROUTT CTY, CO	28	SACRAMENTO, CA	$27.64
93	MOFFAT & ROUTT CTY, CO	29	SAN DIEGO, CA	$24.53
93	MOFFAT & ROUTT CTY, CO	31	FRESNO, CA	$27.64
93	MOFFAT & ROUTT CTY, CO	32	SAN LUIS OBISPO, CA	$27.64
93	MOFFAT & ROUTT CTY, CO	33	SAN BERNADINO, CA	$27.64
93	MOFFAT & ROUTT CTY, CO	34	LA JUNTA, CO	$8.95
93	MOFFAT & ROUTT CTY, CO	35	GRAND JUNCTION, CO	$8.95
93	MOFFAT & ROUTT CTY, CO	36	DENVER, CO	$10.41
93	MOFFAT & ROUTT CTY, CO	37	GREELEY, CO	$12.11
93	MOFFAT & ROUTT CTY, CO	38	PUEBLO, CO	$9.16
93	MOFFAT & ROUTT CTY, CO	39	ALAMOSA, CO	$8.95
93	MOFFAT & ROUTT CTY, CO	40	STEAMBOAT SPRINGS,CO	$4.24
93	MOFFAT & ROUTT CTY, CO	61	POCATELLO, ID	$18.30
93	MOFFAT & ROUTT CTY, CO	63	TWIN FALLS, ID	$18.30
93	MOFFAT & ROUTT CTY, CO	64	BOISE, ID	$24.55
93	MOFFAT & ROUTT CTY, CO	68	DUBUQUE, IA	$27.64
93	MOFFAT & ROUTT CTY, CO	69	DAVENPORT, IA	$27.64
93	MOFFAT & ROUTT CTY, CO	70	ST. LOUIS, MO	$24.34
93	MOFFAT & ROUTT CTY, CO	74	MARION, IL	$29.21
93	MOFFAT & ROUTT CTY, CO	85	OMAHA, NE	$21.31
93	MOFFAT & ROUTT CTY, CO	86	SIOUX CITY, IA	$21.43
93	MOFFAT & ROUTT CTY, CO	87	SIOUX FALLS, SD	$24.91
93	MOFFAT & ROUTT CTY, CO	88	WATERLOO, IA	$27.67
93	MOFFAT & ROUTT CTY, CO	89	MASON CITY, IA	$27.67
93	MOFFAT & ROUTT CTY, CO	90	SPENCER, IA	$24.55
93	MOFFAT & ROUTT CTY, CO	91	OTTUMWA, IA	$24.55
93	MOFFAT & ROUTT CTY, CO	92	DES MOINES, IA	$24.34
93	MOFFAT & ROUTT CTY, CO	93	CRESTON, IA	$24.55
93	MOFFAT & ROUTT CTY, CO	94	KANSAS CITY, MO	$18.30
93	MOFFAT & ROUTT CTY, CO	95	SALINA, KS	$15.18
93	MOFFAT & ROUTT CTY, CO	96	TOPEKA, KS	$18.30
93	MOFFAT & ROUTT CTY, CO	97	OAKLEY, KS	$15.20
93	MOFFAT & ROUTT CTY, CO	98	WICHITA, KS	$15.18
93	MOFFAT & ROUTT CTY, CO	99	PITTSBURG, KS	$21.43
93	MOFFAT & ROUTT CTY, CO	100	DODGE CITY, KS	$15 20
93	MOFFAT & ROUTT CTY, CO	133	WILLMAR, MN	$21 43
93	MOFFAT & ROUTT CTY, CO	137	JEFFERSON CITY, MO	$27 64
93	MOFFAT & ROUTT CTY, CO	138	CAPE GIRARDEAU, MO	$21 43
93	MOFFAT & ROUTT CTY, CO	139	SPRINGFIELD, MO	$21 43
93	MOFFAT & ROUTT CTY, CO	142	HELENA, MT	$21 43
93	MOFFAT & ROUTT CTY, CO	143	MILES CITY, MT	$27 64
93	MOFFAT & ROUTT CTY, CO	144	MISSOULA, MT	$18 30
93	MOFFAT & ROUTT CTY, CO	145	LINCOLN, NE	$17 51
93	MOFFAT & ROUTT CTY, CO	146	GRAND ISLAND, NE	$24 36
93	MOFFAT & ROUTT CTY, CO	147	WINNEMUCA, NV	$24 53
93	MOFFAT & ROUTT CTY, CO	153	EL PASO, TX	$21 39
93	MOFFAT & ROUTT CTY, CO	156	SOCORRO NM	$21 39
93	MOFFAT & ROUTT CTY, CO	157	SANTE FE, NM	$52 66
93	MOFFAT & ROUTT CTY, CO	172	BISMARK, ND	$27 64
93	MOFFAT & ROUTT CTY, CO	184	OKLAHOMA CITY, OK	$18 30
93	MOFFAT & ROUTT CTY, CO	185	ENID, OK	$18 30
93	MOFFAT & ROUTT CTY, CO	186	TULSA, OK	$21 43
93	MOFFAT & ROUTT CTY, CO	187	BOISE CITY, OK	$18 32
93	MOFFAT & ROUTT CTY, CO	188	MCALESTER, OK	$24 55
93	MOFFAT & ROUTT CTY, CO	189	LAWTON, OK	$18 30
93	MOFFAT & ROUTT CTY, CO	205	RAPID CITY, SD	$21 45
93	MOFFAT & ROUTT CTY, CO	206	PIERRE, SD	$21 43
93	MOFFAT & ROUTT CTY, CO	210	WICHITA, FALLS, TX	$18.30
93	MOFFAT & ROUTT CTY, CO	211	AMARILLO, TX	$27.22
93	MOFFAT & ROUTT CTY, CO	212	AUSTIN, TX	$27.64
93	MOFFAT & ROUTT CTY, CO	215	DALLAS, TX	$21.43
93	MOFFAT & ROUTT CTY, CO	218	SAN ANGELO, TX	$21.43
93	MOFFAT & ROUTT CTY, CO	219	MORGAN, UT	$21.20
93	MOFFAT & ROUTT CTY, CO	220	SALT LAKE CITY, UT	$12.72
93	MOFFAT & ROUTT CTY, CO	241	CASPER, WY	$12.08
93	MOFFAT & ROUTT CTY, CO	242	CHEYENNE, WY	$12.08
93	MOFFAT & ROUTT CTY, CO	243	ROCK SPRINGS, WY	$8.93
94	SWEETWATER CTY, WY	34	LA JUNTA, CO	$18.08
94	SWEETWATER CTY, WY	35	GRAND JUNCTION, CO	$8.71
94	SWEETWATER CTY, WY	36	DENVER, CO	$20.48
94	SWEETWATER CTY, WY	37	GREELEY, CO	$20.48
94	SWEETWATER CTY, WY	38	PUEBLO, CO	$18.08
94	SWEETWATER CTY, WY	39	ALAMOSA, CO	$18.08
94	SWEETWATER CTY, WY	40	STEAMBOAT SPRINGS,CO	$8.71
94	SWEETWATER CTY, WY	61	POCATELLO, ID	$15.01

Table F6. Transport rates for coal shipments by regular rail—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
94	SWEETWATER CTY, WY	63	TWIN FALLS, ID	$15.01
94	SWEETWATER CTY, WY	64	BOISE, ID	$18.13
94	SWEETWATER CTY, WY	67	CHICAGO, IL	$46.36
94	SWEETWATER CTY, WY	143	MILES CITY, MT	$20.78
94	SWEETWATER CTY, WY	146	GRAND ISLAND, NE	$19.82
94	SWEETWATER CTY, WY	147	WINNEMUCA, NV	$19.82
94	SWEETWATER CTY, WY	219	MORGAN, UT	$5.81
94	SWEETWATER CTY, WY	220	SALT LAKE CITY, UT	$8.71
94	SWEETWATER CTY, WY	243	ROCK SPRINGS, WY	$3.18
95	POWDER RIVER BASIN, MT	12	LORDSBURG, NM	$30.44
95	POWDER RIVER BASIN, MT	16	LITTLE ROCK, AR	$30.44
95	POWDER RIVER BASIN, MT	17	FT. SMITH, AR	$30.44
95	POWDER RIVER BASIN, MT	21	CLARKSVILLE, AR	$30.44
95	POWDER RIVER BASIN, MT	34	LA JUNTA, CO	$17.96
95	POWDER RIVER BASIN, MT	35	GRAND JUNCTION, CO	$21.09
95	POWDER RIVER BASIN, MT	36	DENVER, CO	$16.20
95	POWDER RIVER BASIN, MT	37	GREELEY, CO	$22.47
95	POWDER RIVER BASIN, MT	38	PUEBLO, CO	$27.56
95	POWDER RIVER BASIN, MT	39	ALAMOSA, CO	$17.96
95	POWDER RIVER BASIN, MT	40	STEAMBOAT SPRINGS,CO	$21.09
95	POWDER RIVER BASIN, MT	61	POCATELLO, ID	$21.12
95	POWDER RIVER BASIN, MT	62	SPOKANE, WA	$22.45
95	POWDER RIVER BASIN, MT	63	TWIN FALLS, ID	$21.12
95	POWDER RIVER BASIN, MT	64	BOISE, ID	$30.04
95	POWDER RIVER BASIN, MT	65	PEORIA, IL	$26.63
95	POWDER RIVER BASIN, MT	67	CHICAGO, IL	$35.32
95	POWDER RIVER BASIN, MT	68	DUBUQUE, IA	$24.21
95	POWDER RIVER BASIN, MT	69	DAVENPORT, IA	$24.21
95	POWDER RIVER BASIN, MT	70	ST. LOUIS, MO	$27.41
95	POWDER RIVER BASIN, MT	73	ROCKFORD, IL	$30.55
95	POWDER RIVER BASIN, MT	85	OMAHA, NE	$17.96
95	POWDER RIVER BASIN, MT	86	SIOUX CITY, IA	$22.47
95	POWDER RIVER BASIN, MT	87	SIOUX FALLS, SD	$18.06
95	POWDER RIVER BASIN, MT	88	WATERLOO, IA	$21.24
95	POWDER RIVER BASIN, MT	89	MASON CITY, IA	$21.20
95	POWDER RIVER BASIN, MT	90	SPENCER, IA	$17.96
95	POWDER RIVER BASIN, MT	91	OTTUMWA, IA	$21.09
95	POWDER RIVER BASIN, MT	92	DES MOINES, IA	$21.09
95	POWDER RIVER BASIN, MT	93	CRESTON, IA	$21.09
95	POWDER RIVER BASIN, MT	94	KANSAS CITY, MO	$21.09
95	POWDER RIVER BASIN, MT	95	SALINA, KS	$21.09
95	POWDER RIVER BASIN, MT	96	TOPEKA, KS	$21.09
95	POWDER RIVER BASIN, MT	97	OAKLEY, KS	$21.09
95	POWDER RIVER BASIN, MT	98	WICHITA, KS	$21.09
95	POWDER RIVER BASIN, MT	99	PITTSBURG, KS	$27.31
95	POWDER RIVER BASIN, MT	100	DODGE CITY, KS	$21.09
95	POWDER RIVER BASIN, MT	123	DETROIT, MI	$41.34
95	POWDER RIVER BASIN, MT	124	TOLEDO, OH	$44.46
95	POWDER RIVER BASIN, MT	126	MARQUETTE, MI	$28.43
95	POWDER RIVER BASIN, MT	127	ST. CLOUD, MN	$21.20
95	POWDER RIVER BASIN, MT	128	LA CROSSE, WI	$28.98
95	POWDER RIVER BASIN, MT	129	DULUTH, MN	$22.87
95	POWDER RIVER BASIN, MT	130	FARGO, ND	$18.40
95	POWDER RIVER BASIN, MT	131	MINNEAPOLIS, MN	$19.82
95	POWDER RIVER BASIN, MT	132	THIEF RIVER FALLS,MN	$18.06
95	POWDER RIVER BASIN, MT	133	WILLMAR, MN	$18.00
95	POWDER RIVER BASIN, MT	138	CAPE GIRARDEAU, MO	$27.31
95	POWDER RIVER BASIN, MT	139	SPRINGFIELD, MO	$12.76
95	POWDER RIVER BASIN, MT	140	BILLINGS, MT	$10.47
95	POWDER RIVER BASIN, MT	141	GREAT FALLS, MT	$10.47
95	POWDER RIVER BASIN, MT	142	HELENA, MT	$12.76
95	POWDER RIVER BASIN, MT	143	MILES CITY, MT	$14.86
95	POWDER RIVER BASIN, MT	144	MISSOULA, MT	$17.96
95	POWDER RIVER BASIN, MT	145	LINCOLN, NE	$25.44
95	POWDER RIVER BASIN, MT	148	RENO, NV	$55.37
95	POWDER RIVER BASIN, MT	152	ALBUQUERQUE, NM	$30.44
95	POWDER RIVER BASIN, MT	154	LAS VEGAS, NM	$24.19
95	POWDER RIVER BASIN, MT	155	CLOVIS, NM	$30.44
95	POWDER RIVER BASIN, MT	172	BISMARK, ND	$14.33
95	POWDER RIVER BASIN, MT	184	OKLAHOMA CITY, OK	$27.31
95	POWDER RIVER BASIN, MT	185	ENID, OK	$27.31
95	POWDER RIVER BASIN, MT	186	TULSA, OK	$27.31
95	POWDER RIVER BASIN, MT	187	BOISE CITY, OK	$24.21
95	POWDER RIVER BASIN, MT	188	MCALESTER, OK	$30.44
95	POWDER RIVER BASIN, MT	189	LAWTON, OK	$27.31
95	POWDER RIVER BASIN, MT	191	PENDLETON, OR	$30.46
95	POWDER RIVER BASIN, MT	205	RAPID CITY, SD	$20.14
95	POWDER RIVER BASIN, MT	206	PIERRE, SD	$19.08
95	POWDER RIVER BASIN, MT	210	WICHITA, FALLS, TX	$27.31
95	POWDER RIVER BASIN, MT	211	AMARILLO, TX	$24.19
95	POWDER RIVER BASIN, MT	215	DALLAS, TX	$30.44
95	POWDER RIVER BASIN, MT	219	MORGAN, UT	$28.54
95	POWDER RIVER BASIN, MT	220	SALT LAKE CITY, UT	$28.54
95	POWDER RIVER BASIN, MT	227	WENATCHEE, WA	$22.45

Table F6. Transport rates for coal shipments by regular rail—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
95	POWDER RIVER BASIN, MT	228	OLYMPIA, WA	$28.54
95	POWDER RIVER BASIN, MT	229	SEATTLE, WA	$28.54
95	POWDER RIVER BASIN, MT	230	YAKIMA, WA	$30.46
95	POWDER RIVER BASIN, MT	237	GREEN BAY, WI	$28.43
95	POWDER RIVER BASIN, MT	238	WAUSAU, WI	$30.23
95	POWDER RIVER BASIN, MT	240	MADISON, WI	$28.92
95	POWDER RIVER BASIN, MT	241	CASPER, WY	$15.65
95	POWDER RIVER BASIN, MT	242	CHEYENNE, WY	$23.32
95	POWDER RIVER BASIN, MT	243	ROCK SPRINGS, WY	$28.54
96	POWDER RIVER BASIN, WY	12	LORDSBURG, NM	$27.52
96	POWDER RIVER BASIN, WY	16	LITTLE ROCK, AR	$27.52
96	POWDER RIVER BASIN, WY	17	FT. SMITH, AR	$24.40
96	POWDER RIVER BASIN, WY	19	MONROE, LA	$30.66
96	POWDER RIVER BASIN, WY	20	JONESBORO, AR	$30.66
96	POWDER RIVER BASIN, WY	21	CLARKSVILLE, AR	$27.52
96	POWDER RIVER BASIN, WY	22	SHREVEPORT, LA	$27.52
96	POWDER RIVER BASIN, WY	34	LA JUNTA, CO	$25.44
96	POWDER RIVER BASIN, WY	35	GRAND JUNCTION, CO	$25.44
96	POWDER RIVER BASIN, WY	36	DENVER, CO	$16.96
96	POWDER RIVER BASIN, WY	37	GREELEY, CO	$16.96
96	POWDER RIVER BASIN, WY	38	PUEBLO, CO	$8.80
96	POWDER RIVER BASIN, WY	39	ALAMOSA, CO	$25.44
96	POWDER RIVER BASIN, WY	40	STEAMBOAT SPRINGS,CO	$25.44
96	POWDER RIVER BASIN, WY	61	POCATELLO, ID	$21.31
96	POWDER RIVER BASIN, WY	62	SPOKANE, WA	$30.68
96	POWDER RIVER BASIN, WY	63	TWIN FALLS, ID	$21.31
96	POWDER RIVER BASIN, WY	64	BOISE, ID	$27.52
96	POWDER RIVER BASIN, WY	65	PEORIA, IL	$28.98
96	POWDER RIVER BASIN, WY	68	DUBUQUE, IA	$21.31
96	POWDER RIVER BASIN, WY	69	DAVENPORT, IA	$24.42
96	POWDER RIVER BASIN, WY	70	ST. LOUIS, MO	$24.76
96	POWDER RIVER BASIN, WY	73	ROCKFORD, IL	$27.62
96	POWDER RIVER BASIN, WY	74	MARION, IL	$29.09
96	POWDER RIVER BASIN, WY	85	OMAHA, NE	$15.05
96	POWDER RIVER BASIN, WY	86	SIOUX CITY, IA	$15.05
96	POWDER RIVER BASIN, WY	87	SIOUX FALLS, SD	$25.44
96	POWDER RIVER BASIN, WY	88	WATERLOO, IA	$24.42
96	POWDER RIVER BASIN, WY	89	MASON CITY, IA	$24.42
96	POWDER RIVER BASIN, WY	90	SPENCER, IA	$25.44
96	POWDER RIVER BASIN, WY	91	OTTUMWA, IA	$25.44
96	POWDER RIVER BASIN, WY	92	DES MOINES, IA	$18.23
96	POWDER RIVER BASIN, WY	93	CRESTON, IA	$25.44
96	POWDER RIVER BASIN, WY	94	KANSAS CITY, MO	$18.17
96	POWDER RIVER BASIN, WY	95	SALINA, KS	$25.44
96	POWDER RIVER BASIN, WY	96	TOPEKA, KS	$25.44
96	POWDER RIVER BASIN, WY	97	OAKLEY, KS	$25.44
96	POWDER RIVER BASIN, WY	98	WICHITA, KS	$25.44
96	POWDER RIVER BASIN, WY	99	PITTSBURG, KS	$21.31
96	POWDER RIVER BASIN, WY	100	DODGE CITY, KS	$25.44
96	POWDER RIVER BASIN, WY	126	MARQUETTE, MI	$30.34
96	POWDER RIVER BASIN, WY	127	ST. CLOUD, MN	$29.32
96	POWDER RIVER BASIN, WY	128	LA CROSSE, WI	$29.09
96	POWDER RIVER BASIN, WY	129	DULUTH, MN	$23.89
96	POWDER RIVER BASIN, WY	130	FARGO, ND	$24.42
96	POWDER RIVER BASIN, WY	131	MINNEAPOLIS, MN	$30.97
96	POWDER RIVER BASIN, WY	132	THIEF RIVER FALLS,MN	$29.32
96	POWDER RIVER BASIN, WY	133	WILLMAR, MN	$25.44
96	POWDER RIVER BASIN, WY	137	JEFFERSON CITY, MO	$27.52
96	POWDER RIVER BASIN, WY	138	CAPE GIRARDEAU, MO	$25.55
96	POWDER RIVER BASIN, WY	139	SPRINGFIELD, MO	$15.84
96	POWDER RIVER BASIN, WY	140	BILLINGS, MT	$21.31
96	POWDER RIVER BASIN, WY	141	GREAT FALLS, MT	$21.31
96	POWDER RIVER BASIN, WY	142	HELENA, MT	$15.84
96	POWDER RIVER BASIN, WY	143	MILES CITY, MT	$24.42
96	POWDER RIVER BASIN, WY	144	MISSOULA, MT	$21.20
96	POWDER RIVER BASIN, WY	145	LINCOLN, NE	$21.20
96	POWDER RIVER BASIN, WY	146	GRAND ISLAND, NE	$33.73
96	POWDER RIVER BASIN, WY	148	RENO, NV	$55.61
96	POWDER RIVER BASIN, WY	152	ALBUQUERQUE, NM	$27.52
96	POWDER RIVER BASIN, WY	153	EL PASO, TX	$21.92
96	POWDER RIVER BASIN, WY	155	CLOVIS, NM	$27.52
96	POWDER RIVER BASIN, WY	156	SOCORRO NM	$21.92
96	POWDER RIVER BASIN, WY	172	BISMARK, ND	$21.31
96	POWDER RIVER BASIN, WY	184	OKLAHOMA CITY, OK	$18.15
96	POWDER RIVER BASIN, WY	185	ENID, OK	$18.15
96	POWDER RIVER BASIN, WY	186	TULSA, OK	$21.31
96	POWDER RIVER BASIN, WY	187	BOISE CITY, OK	$18.17
96	POWDER RIVER BASIN, WY	188	MCALESTER, OK	$24.40
96	POWDER RIVER BASIN, WY	189	LAWTON, OK	$18.15
96	POWDER RIVER BASIN, WY	205	RAPID CITY, SD	$15.90
96	POWDER RIVER BASIN, WY	206	PIERRE, SD	$16.96
96	POWDER RIVER BASIN, WY	210	WICHITA, FALLS, TX	$18.15
96	POWDER RIVER BASIN, WY	211	AMARILLO, TX	$23.91
96	POWDER RIVER BASIN, WY	212	AUSTIN, TX	$27.52

Table F6. Transport rates for coal shipments by regular rail—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
96	POWDER RIVER BASIN, WY	215	DALLAS, TX	$21.28
96	POWDER RIVER BASIN, WY	216	HOUSTON, TX	$30.66
96	POWDER RIVER BASIN, WY	217	SAN ANTONIO, TX	$30.66
96	POWDER RIVER BASIN, WY	218	SAN ANGELO, TX	$21.28
96	POWDER RIVER BASIN, WY	219	MORGAN, UT	$21.92
96	POWDER RIVER BASIN, WY	220	SALT LAKE CITY, UT	$21.92
96	POWDER RIVER BASIN, WY	227	WENATCHEE, WA	$30.68
96	POWDER RIVER BASIN, WY	237	GREEN BAY, WI	$30.34
96	POWDER RIVER BASIN, WY	238	WAUSAU, WI	$27.28
96	POWDER RIVER BASIN, WY	239	MILWAUKEE, WI	$30.57
96	POWDER RIVER BASIN, WY	240	MADISON, WI	$28.92
96	POWDER RIVER BASIN, WY	241	CASPER, WY	$15.84
96	POWDER RIVER BASIN, WY	242	CHEYENNE, WY	$15.84
96	POWDER RIVER BASIN, WY	243	ROCK SPRINGS, WY	$22.03
97	FORT UNION, MT	68	DUBUQUE, IA	$18.04
97	FORT UNION, MT	86	SIOUX CITY, IA	$18.04
97	FORT UNION, MT	87	SIOUX FALLS, SD	$14.95
97	FORT UNION, MT	88	WATERLOO, IA	$18.04
97	FORT UNION, MT	89	MASON CITY, IA	$18.04
97	FORT UNION, MT	90	SPENCER, IA	$18.04
97	FORT UNION, MT	126	MARQUETTE, MI	$20.80
97	FORT UNION, MT	127	ST. CLOUD, MN	$14.95
97	FORT UNION, MT	129	DULUTH, MN	$15.20
97	FORT UNION, MT	130	FARGO, ND	$12.72
97	FORT UNION, MT	131	MINNEAPOLIS, MN	$14.95
97	FORT UNION, MT	132	THIEF RIVER FALLS,MN	$12.72
97	FORT UNION, MT	133	WILLMAR, MN	$14.95
97	FORT UNION, MT	139	SPRINGFIELD, MO	$15.09
97	FORT UNION, MT	140	BILLINGS, MT	$14.95
97	FORT UNION, MT	141	GREAT FALLS, MT	$14.95
97	FORT UNION, MT	142	HELENA, MT	$12.19
97	FORT UNION, MT	143	MILES CITY, MT	$21.20
97	FORT UNION, MT	148	RENO, NV	$49.27
97	FORT UNION, MT	172	BISMARK, ND	$9.54
97	FORT UNION, MT	205	RAPID CITY, SD	$18.04
97	FORT UNION, MT	206	PIERRE, SD	$18.04
98	FORT UNION, ND	68	DUBUQUE, IA	$18.17
98	FORT UNION, ND	85	OMAHA, NE	$18.17
98	FORT UNION, ND	86	SIOUX CITY, IA	$11.96
98	FORT UNION, ND	87	SIOUX FALLS, SD	$11.96
98	FORT UNION, ND	88	WATERLOO, IA	$18.17
98	FORT UNION, ND	89	MASON CITY, IA	$18.17
98	FORT UNION, ND	90	SPENCER, IA	$15.05
98	FORT UNION, ND	91	OTTUMWA, IA	$18.17
98	FORT UNION, ND	92	DES MOINES, IA	$18.17
98	FORT UNION, ND	93	CRESTON, IA	$18.17
98	FORT UNION, ND	126	MARQUETTE, MI	$20.90
98	FORT UNION, ND	127	ST. CLOUD, MN	$12.72
98	FORT UNION, ND	129	DULUTH, MN	$14.78
98	FORT UNION, ND	130	FARGO, ND	$8.71
98	FORT UNION, ND	131	MINNEAPOLIS, MN	$12.72
98	FORT UNION, ND	132	THIEF RIVER FALLS,MN	$10.60
98	FORT UNION, ND	133	WILLMAR, MN	$11.89
98	FORT UNION, ND	139	SPRINGFIELD, MO	$14.42
98	FORT UNION, ND	140	BILLINGS, MT	$15.05
98	FORT UNION, ND	141	GREAT FALLS, MT	$15.05
98	FORT UNION, ND	142	HELENA, MT	$14.42
98	FORT UNION, ND	143	MILES CITY, MT	$18.17
98	FORT UNION, ND	144	MISSOULA, MT	$18.17
98	FORT UNION, ND	148	RENO, NV	$49.35
98	FORT UNION, ND	172	BISMARK, ND	$15.14
98	FORT UNION, ND	205	RAPID CITY, SD	$18.17
98	FORT UNION, ND	206	PIERRE, SD	$18.27
99	DENVER BASIN, CO	36	DENVER, CO	$4.75
99	DENVER BASIN, CO	37	GREELEY, CO	$4.24
99	DENVER BASIN, CO	38	PUEBLO, CO	$4.75
99	DENVER BASIN, CO	148	RENO, NV	$55.52
99	DENVER BASIN, CO	241	CASPER, WY	$5.55
99	DENVER BASIN, CO	242	CHEYENNE, WY	$2.65

Table F7. Transport rates for coal shipments by combination rail/barge or by barge

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	LOADING DOCK	RATE (1985 $/TON)
3	BIRMINGHAM, AL	4	BIRMINGHAM, AL	BLACK WARRIOR RIVER IN AQCR 4	$4.03
3	BIRMINGHAM, AL	5	MOBILE, AL	BLACK WARRIOR RIVER IN AQCR 4	$5.43
3	BIRMINGHAM, AL	7	DECATUR, AL	BLACK WARRIOR RIVER IN AQCR 4	$11.41
3	BIRMINGHAM, AL	74	MARION, IL	BLACK WARRIOR RIVER IN AQCR 4	$12.64
3	BIRMINGHAM, AL	106	NEW ORLEANS, LA	BLACK WARRIOR RIVER IN AQCR 4	$12.08
3	BIRMINGHAM, AL	135	TUPELO, MS	BLACK WARRIOR RIVER IN AQCR 4	$5.53
3	BIRMINGHAM, AL	138	CAPE GIRARDEAU, MO	BLACK WARRIOR RIVER IN AQCR 4	$12.64
3	BIRMINGHAM, AL	209	JACKSON, TN	BLACK WARRIOR RIVER IN AQCR 4	$11.28
4	JASPER, TN	5	MOBILE, AL	TENNESSEE RIVER IN AQCR 7	$8.78
4	JASPER, TN	7	DECATUR, AL	TENNESSEE RIVER IN AQCR 7	$3.60
4	JASPER, TN	7	DECATUR, AL	TENNESSEE RIVER IN AQCR 207	$6.55
4	JASPER, TN	20	JONESBORO, AR	TENNESSEE RIVER IN AQCR 7	$8.31
4	JASPER, TN	20	JONESBORO, AR	TENNESSEE RIVER IN AQCR 207	$11.53
4	JASPER, TN	55	CHATTANOOGA, TN	TENNESSEE RIVER IN AQCR 207	$4.69
4	JASPER, TN	55	CHATTANOOGA, TN	TENNESSEE RIVER IN AQCR 7	$5.47
4	JASPER, TN	70	ST. LOUIS, MO	TENNESSEE RIVER IN AQCR 7	$8.67
4	JASPER, TN	74	MARION, IL	TENNESSEE RIVER IN AQCR 7	$7.14
4	JASPER, TN	74	MARION, IL	TENNESSEE RIVER IN AQCR 207	$10.37
4	JASPER, TN	75	SPRINGFIELD, IL	TENNESSEE RIVER IN AQCR 7	$10.66
4	JASPER, TN	77	EVANSVILLE, IN	TENNESSEE RIVER IN AQCR 7	$8.69
4	JASPER, TN	83	BLOOMINGTON, IN	TENNESSEE RIVER IN AQCR 7	$10.71
4	JASPER, TN	106	NEW ORLEANS, LA	TENNESSEE RIVER IN AQCR 7	$15.43
4	JASPER, TN	106	NEW ORLEANS, LA	TENNESSEE RIVER IN AQCR 207	$18.66
4	JASPER, TN	135	TUPELO, MS	TENNESSEE RIVER IN AQCR 7	$5.87
4	JASPER, TN	135	TUPELO, MS	TENNESSEE RIVER IN AQCR 207	$9.09
4	JASPER, TN	137	JEFFERSON CITY, MO	TENNESSEE RIVER IN AQCR 7	$10.85
4	JASPER, TN	138	CAPE GIRARDEAU, MO	TENNESSEE RIVER IN AQCR 7	$7.14
4	JASPER, TN	138	CAPE GIRARDEAU, MO	TENNESSEE RIVER IN AQCR 207	$10.37
4	JASPER, TN	207	KNOXVILLE, TN	TENNESSEE RIVER IN AQCR 207	$3.33
4	JASPER, TN	207	KNOXVILLE, TN	TENNESSEE RIVER IN AQCR 7	$6.83
4	JASPER, TN	209	JACKSON, TN	TENNESSEE RIVER IN AQCR 7	$5.75
4	JASPER, TN	209	JACKSON, TN	TENNESSEE RIVER IN AQCR 207	$9.46
4	JASPER, TN	216	HOUSTON, TX	TENNESSEE RIVER IN AQCR 7	$17.11
7	OAK RIDGE, TN	1	JACKSON, AL	TENNESSEE RIVER IN AQCR 207	$16.83
7	OAK RIDGE, TN	5	MOBILE, AL	TENNESSEE RIVER IN AQCR 207	$12.00
7	OAK RIDGE, TN	7	DECATUR, AL	TENNESSEE RIVER IN AQCR 207	$6.55
7	OAK RIDGE, TN	20	JONESBORO, AR	TENNESSEE RIVER IN AQCR 207	$11.53
7	OAK RIDGE, TN	55	CHATTANOOGA, TN	TENNESSEE RIVER IN AQCR 207	$4.69
7	OAK RIDGE, TN	70	ST. LOUIS, MO	TENNESSEE RIVER IN AQCR 207	$11.89
7	OAK RIDGE, TN	74	MARION, IL	TENNESSEE RIVER IN AQCR 207	$10.37
7	OAK RIDGE, TN	77	EVANSVILLE, IN	TENNESSEE RIVER IN AQCR 207	$11.91
7	OAK RIDGE, TN	135	TUPELO, MS	TENNESSEE RIVER IN AQCR 207	$9.09
7	OAK RIDGE, TN	138	CAPE GIRARDEAU, MO	TENNESSEE RIVER IN AQCR 207	$10.37
7	OAK RIDGE, TN	207	KNOXVILLE, TN	TENNESSEE RIVER IN AQCR 207	$3.33
7	OAK RIDGE, TN	209	JACKSON, TN	TENNESSEE RIVER IN AQCR 207	$9.46
8	LEBANON, VA	7	DECATUR, AL	TENNESSEE RIVER IN AQCR 207	$11.28
8	LEBANON, VA	55	CHATTANOOGA, TN	TENNESSEE RIVER IN AQCR 207	$9.41
8	LEBANON, VA	79	CINCINNATI, OH	KANAWHA & OHIO IN AQCR 103	$12.21
8	LEBANON, VA	103	HUNTINGTON, WV	KANAWHA & OHIO IN AQCR 103	$10.22
8	LEBANON, VA	179	PARKERSBURG, WV	KANAWHA & OHIO IN AQCR 103	$11.68
8	LEBANON, VA	207	KNOXVILLE, TN	TENNESSEE RIVER IN AQCR 207	$8.06
8	LEBANON, VA	234	CHARLESTON, WV	KANAWHA & OHIO IN AQCR 103	$10.07
9	PIKEVILLE, KY	78	LOUISVILLE, KY	KANAWHA & OHIO IN AQCR 103	$12.70
9	PIKEVILLE, KY	79	CINCINNATI, OH	KANAWHA & OHIO IN AQCR 103	$10.77
9	PIKEVILLE, KY	83	BLOOMINGTON, IN	KANAWHA & OHIO IN AQCR 103	$12.70
9	PIKEVILLE, KY	102	LEXINGTON, KY	KANAWHA & OHIO IN AQCR 103	$11.66
9	PIKEVILLE, KY	103	HUNTINGTON, WV	KANAWHA & OHIO IN AQCR 103	$8.78
9	PIKEVILLE, KY	104	ELIZABETHTOWN, KY	KANAWHA & OHIO IN AQCR 103	$12.70
9	PIKEVILLE, KY	179	PARKERSBURG, WV	KANAWHA & OHIO IN AQCR 103	$10.24
9	PIKEVILLE, KY	181	WHEELING, WV	KANAWHA & OHIO IN AQCR 103	$11.74
9	PIKEVILLE, KY	197	PITTSBURGH, PA	KANAWHA & OHIO IN AQCR 103	$12.64
9	PIKEVILLE, KY	234	CHARLESTON, WV	KANAWHA & OHIO IN AQCR 103	$8.63
10	MIDDLESBORO, KY	7	DECATUR, AL	TENNESSEE RIVER IN AQCR 207	$14.31
10	MIDDLESBORO, KY	55	CHATTANOOGA, TN	TENNESSEE RIVER IN AQCR 207	$12.44
10	MIDDLESBORO, KY	77	EVANSVILLE, IN	OHIO RIVER IN AQCR 78	$14.50
10	MIDDLESBORO, KY	78	LOUISVILLE, KY	OHIO RIVER IN AQCR 78	$12.49
10	MIDDLESBORO, KY	79	CINCINNATI, OH	OHIO RIVER IN AQCR 78	$13.84
10	MIDDLESBORO, KY	83	BLOOMINGTON, IN	OHIO RIVER IN AQCR 78	$12.49
10	MIDDLESBORO, KY	104	ELIZABETHTOWN, KY	OHIO RIVER IN AQCR 78	$12.49
10	MIDDLESBORO, KY	105	BOWLING GREEN, KY	OHIO RIVER IN AQCR 78	$14.63
10	MIDDLESBORO, KY	207	KNOXVILLE, TN	TENNESSEE RIVER IN AQCR 207	$11.09
11	BEATTYVILLE, KY	78	LOUISVILLE, KY	KENTUCKY & OHIO IN AQCR 79	$10.18
11	BEATTYVILLE, KY	78	LOUISVILLE, KY	OHIO RIVER IN AQCR 78	$10.64
11	BEATTYVILLE, KY	79	CINCINNATI, OH	KENTUCKY & OHIO IN AQCR 79	$8.25
11	BEATTYVILLE, KY	83	BLOOMINGTON, IN	KENTUCKY & OHIO IN AQCR 79	$10.18
11	BEATTYVILLE, KY	83	BLOOMINGTON, IN	OHIO RIVER IN AQCR 78	$10.64
11	BEATTYVILLE, KY	101	HAZARD, KY	KENTUCKY & OHIO IN AQCR 79	$10.90
11	BEATTYVILLE, KY	102	LEXINGTON, KY	KENTUCKY & OHIO IN AQCR 79	$9.37
11	BEATTYVILLE, KY	103	HUNTINGTON, WV	KENTUCKY & OHIO IN AQCR 79	$9.86
11	BEATTYVILLE, KY	104	ELIZABETHTOWN, KY	KENTUCKY & OHIO IN AQCR 79	$10.18
11	BEATTYVILLE, KY	104	ELIZABETHTOWN, KY	OHIO RIVER IN AQCR 78	$10.64
11	BEATTYVILLE, KY	207	KNOXVILLE, TN	TENNESSEE RIVER IN AQCR 207	$11.45
11	BEATTYVILLE, KY	234	CHARLESTON, WV	KENTUCKY & OHIO IN AQCR 79	$10.32
12	SALYERSVILLE, KY	5	MOBILE, AL	KANAWHA & OHIO IN AQCR 103	$17.45

Table F7. Transport rates for coal shipments by combination rail/barge or by barge—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	LOADING DOCK	RATE (1985 $/TON)
12	SALYERSVILLE, KY	5	MOBILE, AL	KENTUCKY & OHIO IN AQCR 79	$20.35
12	SALYERSVILLE, KY	7	DECATUR, AL	KANAWHA & OHIO IN AQCR 103	$14.61
12	SALYERSVILLE, KY	7	DECATUR, AL	KENTUCKY & OHIO IN AQCR 79	$17.53
12	SALYERSVILLE, KY	72	PADUCAH, KY	KANAWHA & OHIO IN AQCR 103	$10.94
12	SALYERSVILLE, KY	72	PADUCAH, KY	KENTUCKY & OHIO IN AQCR 79	$13.61
12	SALYERSVILLE, KY	77	EVANSVILLE, IN	KANAWHA & OHIO IN AQCR 103	$9.39
12	SALYERSVILLE, KY	77	EVANSVILLE, IN	KENTUCKY & OHIO IN AQCR 79	$12.06
12	SALYERSVILLE, KY	78	LOUISVILLE, KY	KANAWHA & OHIO IN AQCR 103	$7.38
12	SALYERSVILLE, KY	78	LOUISVILLE, KY	KENTUCKY & OHIO IN AQCR 79	$10.07
12	SALYERSVILLE, KY	79	CINCINNATI, OH	KANAWHA & OHIO IN AQCR 103	$5.45
12	SALYERSVILLE, KY	79	CINCINNATI, OH	KENTUCKY & OHIO IN AQCR 79	$8.14
12	SALYERSVILLE, KY	83	BLOOMINGTON, IN	KANAWHA & OHIO IN AQCR 103	$7.38
12	SALYERSVILLE, KY	83	BLOOMINGTON, IN	KENTUCKY & OHIO IN AQCR 79	$10.07
12	SALYERSVILLE, KY	101	HAZARD, KY	KANAWHA & OHIO IN AQCR 103	$7.87
12	SALYERSVILLE, KY	102	LEXINGTON, KY	KANAWHA & OHIO IN AQCR 103	$6.34
12	SALYERSVILLE, KY	102	LEXINGTON, KY	KENTUCKY & OHIO IN AQCR 79	$9.26
12	SALYERSVILLE, KY	103	HUNTINGTON, WV	KANAWHA & OHIO IN AQCR 103	$3.46
12	SALYERSVILLE, KY	103	HUNTINGTON, WV	KENTUCKY & OHIO IN AQCR 79	$9.75
12	SALYERSVILLE, KY	104	ELIZABETHTOWN, KY	KANAWHA & OHIO IN AQCR 103	$7.38
12	SALYERSVILLE, KY	104	ELIZABETHTOWN, KY	KENTUCKY & OHIO IN AQCR 79	$10.07
12	SALYERSVILLE, KY	105	BOWLING GREEN, KY	KANAWHA & OHIO IN AQCR 103	$9.46
12	SALYERSVILLE, KY	179	PARKERSBURG, WV	KANAWHA & OHIO IN AQCR 103	$4.92
12	SALYERSVILLE, KY	181	WHEELING, WV	KANAWHA & OHIO IN AQCR 103	$6.42
12	SALYERSVILLE, KY	181	WHEELING, WV	KENTUCKY & OHIO IN AQCR 79	$13.33
12	SALYERSVILLE, KY	197	PITTSBURGH, PA	KANAWHA & OHIO IN AQCR 103	$7.31
12	SALYERSVILLE, KY	207	KNOXVILLE, TN	KANAWHA & OHIO IN AQCR 103	$17.83
12	SALYERSVILLE, KY	207	KNOXVILLE, TN	KENTUCKY & OHIO IN AQCR 79	$20.73
12	SALYERSVILLE, KY	208	NASHVILLE, TN	KANAWHA & OHIO IN AQCR 103	$11.72
12	SALYERSVILLE, KY	208	NASHVILLE, TN	KENTUCKY & OHIO IN AQCR 79	$14.63
12	SALYERSVILLE, KY	234	CHARLESTON, WV	KANAWHA & OHIO IN AQCR 103	$3.31
12	SALYERSVILLE, KY	234	CHARLESTON, WV	KENTUCKY & OHIO IN AQCR 79	$10.22
12	SALYERSVILLE, KY	235	CLARKSBURG, WV	KANAWHA & OHIO IN AQCR 103	$8.33
13	PLEASANTVILLE, OH	5	MOBILE, AL	KANAWHA & OHIO IN AQCR 103	$17.45
13	PLEASANTVILLE, OH	5	MOBILE, AL	OHIO RIVER IN AQCR 181	$37.12
13	PLEASANTVILLE, OH	77	EVANSVILLE, IN	KANAWHA & OHIO IN AQCR 103	$9.39
13	PLEASANTVILLE, OH	78	LOUISVILLE, KY	KANAWHA & OHIO IN AQCR 103	$7.38
13	PLEASANTVILLE, OH	79	CINCINNATI, OH	KANAWHA & OHIO IN AQCR 103	$5.45
13	PLEASANTVILLE, OH	79	CINCINNATI, OH	OHIO RIVER IN AQCR 181	$24.85
13	PLEASANTVILLE, OH	83	BLOOMINGTON, IN	KANAWHA & OHIO IN AQCR 103	$7.38
13	PLEASANTVILLE, OH	101	HAZARD, KY	KANAWHA & OHIO IN AQCR 103	$7.87
13	PLEASANTVILLE, OH	102	LEXINGTON, KY	KANAWHA & OHIO IN AQCR 103	$6.34
13	PLEASANTVILLE, OH	103	HUNTINGTON, WV	KANAWHA & OHIO IN AQCR 103	$3.46
13	PLEASANTVILLE, OH	103	HUNTINGTON, WV	OHIO RIVER IN AQCR 181	$22.85
13	PLEASANTVILLE, OH	104	ELIZABETHTOWN, KY	KANAWHA & OHIO IN AQCR 103	$7.38
13	PLEASANTVILLE, OH	105	BOWLING GREEN, KY	KANAWHA & OHIO IN AQCR 103	$9.46
13	PLEASANTVILLE, OH	179	PARKERSBURG, WV	KANAWHA & OHIO IN AQCR 103	$4.92
13	PLEASANTVILLE, OH	179	PARKERSBURG, WV	OHIO RIVER IN AQCR 181	$20.78
13	PLEASANTVILLE, OH	181	WHEELING, WV	KANAWHA & OHIO IN AQCR 103	$6.42
13	PLEASANTVILLE, OH	181	WHEELING, WV	OHIO RIVER IN AQCR 181	$19.27
13	PLEASANTVILLE, OH	197	PITTSBURGH, PA	KANAWHA & OHIO IN AQCR 103	$7.31
13	PLEASANTVILLE, OH	208	NASHVILLE, TN	KANAWHA & OHIO IN AQCR 103	$11.72
13	PLEASANTVILLE, OH	208	NASHVILLE, TN	OHIO RIVER IN AQCR 181	$31.40
13	PLEASANTVILLE, OH	234	CHARLESTON, WV	KANAWHA & OHIO IN AQCR 103	$3.31
13	PLEASANTVILLE, OH	235	CLARKSBURG, WV	KANAWHA & OHIO IN AQCR 103	$8.33
14	CADIZ, OH	79	CINCINNATI, OH	OHIO RIVER IN AQCR 181	$8.73
14	CADIZ, OH	102	LEXINGTON, KY	OHIO RIVER IN AQCR 181	$9.92
14	CADIZ, OH	103	HUNTINGTON, WV	OHIO RIVER IN AQCR 181	$6.74
14	CADIZ, OH	179	PARKERSBURG, WV	OHIO RIVER IN AQCR 181	$4.66
14	CADIZ, OH	181	WHEELING, WV	OHIO RIVER IN AQCR 181	$3.16
14	CADIZ, OH	197	PITTSBURGH, PA	OHIO RIVER IN AQCR 181	$3.75
14	CADIZ, OH	234	CHARLESTON, WV	OHIO RIVER IN AQCR 181	$6.89
14	CADIZ, OH	235	CLARKSBURG, WV	OHIO RIVER IN AQCR 181	$4.75
16	PITTSBURGH, PA	5	MOBILE, AL	OHIO RIVER IN AQCR 181	$21.01
16	PITTSBURGH, PA	5	MOBILE, AL	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$21.92
16	PITTSBURGH, PA	5	MOBILE, AL	UPPER MISSISSIPPI RIVER IN AQCR 70	$22.87
16	PITTSBURGH, PA	7	DECATUR, AL	OHIO RIVER IN AQCR 181	$18.19
16	PITTSBURGH, PA	7	DECATUR, AL	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$19.08
16	PITTSBURGH, PA	7	DECATUR, AL	UPPER MISSISSIPPI RIVER IN AQCR 70	$20.03
16	PITTSBURGH, PA	77	EVANSVILLE, IN	OHIO RIVER IN AQCR 181	$12.66
16	PITTSBURGH, PA	77	EVANSVILLE, IN	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$13.48
16	PITTSBURGH, PA	77	EVANSVILLE, IN	UPPER MISSISSIPPI RIVER IN AQCR 70	$14.20
16	PITTSBURGH, PA	78	LOUISVILLE, KY	OHIO RIVER IN AQCR 181	$10.64
16	PITTSBURGH, PA	78	LOUISVILLE, KY	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$11.47
16	PITTSBURGH, PA	78	LOUISVILLE, KY	UPPER MISSISSIPPI RIVER IN AQCR 70	$12.19
16	PITTSBURGH, PA	79	CINCINNATI, OH	OHIO RIVER IN AQCR 181	$8.73
16	PITTSBURGH, PA	79	CINCINNATI, OH	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$9.56
16	PITTSBURGH, PA	79	CINCINNATI, OH	UPPER MISSISSIPPI RIVER IN AQCR 70	$10.28
16	PITTSBURGH, PA	83	BLOOMINGTON, IN	OHIO RIVER IN AQCR 181	$10.64
16	PITTSBURGH, PA	83	BLOOMINGTON, IN	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$11.47
16	PITTSBURGH, PA	83	BLOOMINGTON, IN	UPPER MISSISSIPPI RIVER IN AQCR 70	$12.19
16	PITTSBURGH, PA	101	HAZARD, KY	OHIO RIVER IN AQCR 181	$11.45
16	PITTSBURGH, PA	101	HAZARD, KY	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$12.34
16	PITTSBURGH, PA	101	HAZARD, KY	UPPER MISSISSIPPI RIVER IN AQCR 70	$13.29
16	PITTSBURGH, PA	102	LEXINGTON, KY	OHIO RIVER IN AQCR 181	$9.92

Table F7. Transport rates for coal shipments by combination rail/barge or by barge—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	LOADING DOCK	RATE (1985 $/TON)
16	PITTSBURGH, PA	102	LEXINGTON, KY	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$10.81
16	PITTSBURGH, PA	102	LEXINGTON, KY	UPPER MISSISSIPPI RIVER IN AQCR 70	$11.79
16	PITTSBURGH, PA	103	HUNTINGTON, WV	OHIO RIVER IN AQCR 181	$6.74
16	PITTSBURGH, PA	103	HUNTINGTON, WV	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$7.57
16	PITTSBURGH, PA	103	HUNTINGTON, WV	UPPER MISSISSIPPI RIVER IN AQCR 70	$8.29
16	PITTSBURGH, PA	104	ELIZABETHTOWN, KY	OHIO RIVER IN AQCR 181	$10.64
16	PITTSBURGH, PA	104	ELIZABETHTOWN, KY	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$11.47
16	PITTSBURGH, PA	104	ELIZABETHTOWN, KY	UPPER MISSISSIPPI RIVER IN AQCR 70	$12.19
16	PITTSBURGH, PA	105	BOWLING GREEN, KY	OHIO RIVER IN AQCR 181	$13.04
16	PITTSBURGH, PA	105	BOWLING GREEN, KY	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$13.93
16	PITTSBURGH, PA	179	PARKERSBURG, WV	OHIO RIVER IN AQCR 181	$4.66
16	PITTSBURGH, PA	179	PARKERSBURG, WV	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$5.49
16	PITTSBURGH, PA	179	PARKERSBURG, WV	UPPER MISSISSIPPI RIVER IN AQCR 70	$6.19
16	PITTSBURGH, PA	181	WHEELING, WV	OHIO RIVER IN AQCR 181	$3.16
16	PITTSBURGH, PA	181	WHEELING, WV	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$4.01
16	PITTSBURGH, PA	181	WHEELING, WV	UPPER MISSISSIPPI RIVER IN AQCR 70	$4.71
16	PITTSBURGH, PA	197	PITTSBURGH, PA	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$3.10
16	PITTSBURGH, PA	197	PITTSBURGH, PA	OHIO RIVER IN AQCR 181	$3.75
16	PITTSBURGH, PA	197	PITTSBURGH, PA	UPPER MISSISSIPPI RIVER IN AQCR 70	$3.82
16	PITTSBURGH, PA	208	NASHVILLE, TN	OHIO RIVER IN AQCR 181	$15.29
16	PITTSBURGH, PA	208	NASHVILLE, TN	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$16.18
16	PITTSBURGH, PA	208	NASHVILLE, TN	UPPER MISSISSIPPI RIVER IN AQCR 70	$17.15
16	PITTSBURGH, PA	234	CHARLESTON, WV	OHIO RIVER IN AQCR 181	$6.89
16	PITTSBURGH, PA	234	CHARLESTON, WV	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$7.78
16	PITTSBURGH, PA	235	CLARKSBURG, WV	UPPER MISSISSIPPI RIVER IN AQCR 70	$3.56
16	PITTSBURGH, PA	235	CLARKSBURG, WV	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$3.82
16	PITTSBURGH, PA	235	CLARKSBURG, WV	OHIO RIVER IN AQCR 181	$4.75
17	KITTANNING, PA	78	LOUISVILLE, KY	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$11.47
17	KITTANNING, PA	79	CINCINNATI, OH	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$9.56
17	KITTANNING, PA	83	BLOOMINGTON, IN	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$11.47
17	KITTANNING, PA	101	HAZARD, KY	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$12.34
17	KITTANNING, PA	102	LEXINGTON, KY	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$10.81
17	KITTANNING, PA	103	HUNTINGTON, WV	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$7.57
17	KITTANNING, PA	104	ELIZABETHTOWN, KY	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$11.47
17	KITTANNING, PA	179	PARKERSBURG, WV	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$5.49
17	KITTANNING, PA	181	WHEELING, WV	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$4.01
17	KITTANNING, PA	197	PITTSBURGH, PA	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$3.10
17	KITTANNING, PA	234	CHARLESTON, WV	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$7.78
17	KITTANNING, PA	235	CLARKSBURG, WV	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$3.82
18	SHARON, PA	179	PARKERSBURG, WV	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$13.14
18	SHARON, PA	181	WHEELING, WV	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$11.66
18	SHARON, PA	197	PITTSBURGH, PA	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$10.75
18	SHARON, PA	235	CLARKSBURG, WV	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$11.47
19	STATE COLLEGE, PA	103	HUNTINGTON, WV	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$14.39
19	STATE COLLEGE, PA	179	PARKERSBURG, WV	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$12.32
19	STATE COLLEGE, PA	181	WHEELING, WV	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$10.83
19	STATE COLLEGE, PA	197	PITTSBURGH, PA	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$9.92
19	STATE COLLEGE, PA	234	CHARLESTON, WV	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$14.61
19	STATE COLLEGE, PA	235	CLARKSBURG, WV	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$10.64
20	SOMERSET, PA	103	HUNTINGTON, WV	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$11.89
20	SOMERSET, PA	179	PARKERSBURG, WV	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$9.82
20	SOMERSET, PA	179	PARKERSBURG, WV	MONONGAHELA RIVER IN AQCR 235	$11.68
20	SOMERSET, PA	181	WHEELING, WV	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$8.33
20	SOMERSET, PA	181	WHEELING, WV	MONONGAHELA RIVER IN AQCR 235	$10.20
20	SOMERSET, PA	197	PITTSBURGH, PA	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$7.42
20	SOMERSET, PA	197	PITTSBURGH, PA	MONONGAHELA RIVER IN AQCR 235	$9.31
20	SOMERSET, PA	234	CHARLESTON, WV	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$12.11
20	SOMERSET, PA	235	CLARKSBURG, WV	OHIO, MONONGAH & ALLEGHY IN AQCR 197	$8.14
20	SOMERSET, PA	235	CLARKSBURG, WV	MONONGAHELA RIVER IN AQCR 235	$9.05
21	CHARLESTON, WV	5	MOBILE, AL	KANAWHA & OHIO IN AQCR 103	$17.45
21	CHARLESTON, WV	5	MOBILE, AL	KANAWHA RIVER IN AQCR 103	$17.91
21	CHARLESTON, WV	7	DECATUR, AL	KANAWHA & OHIO IN AQCR 103	$14.61
21	CHARLESTON, WV	7	DECATUR, AL	KANAWHA RIVER IN AQCR 103	$15.07
21	CHARLESTON, WV	18	MEMPHIS, TN	KANAWHA & OHIO IN AQCR 103	$13.27
21	CHARLESTON, WV	18	MEMPHIS, TN	KANAWHA RIVER IN AQCR 103	$13.72
21	CHARLESTON, WV	20	JONESBORO, AR	KANAWHA & OHIO IN AQCR 103	$11.49
21	CHARLESTON, WV	20	JONESBORO, AR	KANAWHA RIVER IN AQCR 103	$11.96
21	CHARLESTON, WV	55	CHATTANOOGA, TN	KANAWHA & OHIO IN AQCR 103	$16.47
21	CHARLESTON, WV	55	CHATTANOOGA, TN	KANAWHA RIVER IN AQCR 103	$16.94
21	CHARLESTON, WV	65	PEORIA, IL	KANAWHA & OHIO IN AQCR 103	$15.07
21	CHARLESTON, WV	65	PEORIA, IL	KANAWHA RIVER IN AQCR 103	$15.54
21	CHARLESTON, WV	67	CHICAGO, IL	KANAWHA & OHIO IN AQCR 103	$16.79
21	CHARLESTON, WV	67	CHICAGO, IL	KANAWHA RIVER IN AQCR 103	$17.26
21	CHARLESTON, WV	68	DUBUQUE, IA	KANAWHA & OHIO IN AQCR 103	$17.21
21	CHARLESTON, WV	68	DUBUQUE, IA	KANAWHA RIVER IN AQCR 103	$17.68
21	CHARLESTON, WV	69	DAVENPORT, IA	KANAWHA & OHIO IN AQCR 103	$16.05
21	CHARLESTON, WV	69	DAVENPORT, IA	KANAWHA RIVER IN AQCR 103	$16.49
21	CHARLESTON, WV	70	ST. LOUIS, MO	KANAWHA & OHIO IN AQCR 103	$11.85
21	CHARLESTON, WV	70	ST. LOUIS, MO	KANAWHA RIVER IN AQCR 103	$12.32
21	CHARLESTON, WV	71	LASALLE, IL	KANAWHA & OHIO IN AQCR 103	$15.45
21	CHARLESTON, WV	71	LASALLE, IL	KANAWHA RIVER IN AQCR 103	$15.92
21	CHARLESTON, WV	72	PADUCAH, KY	KANAWHA & OHIO IN AQCR 103	$10.94
21	CHARLESTON, WV	72	PADUCAH, KY	KANAWHA RIVER IN AQCR 103	$12.02
21	CHARLESTON, WV	74	MARION, IL	KANAWHA & OHIO IN AQCR 103	$10.94

Table F7. Transport rates for coal shipments by combination rail/barge or by barge—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	LOADING DOCK	RATE (1985 $/TON)
21	CHARLESTON, WV	74	MARION, IL	KANAWHA RIVER IN AQCR 103	$12.02
21	CHARLESTON, WV	75	SPRINGFIELD, IL	KANAWHA & OHIO IN AQCR 103	$13.84
21	CHARLESTON, WV	75	SPRINGFIELD, IL	KANAWHA RIVER IN AQCR 103	$14.31
21	CHARLESTON, WV	77	EVANSVILLE, IN	KANAWHA & OHIO IN AQCR 103	$9.39
21	CHARLESTON, WV	77	EVANSVILLE, IN	KANAWHA RIVER IN AQCR 103	$10.47
21	CHARLESTON, WV	78	LOUISVILLE, KY	KANAWHA & OHIO IN AQCR 103	$7.38
21	CHARLESTON, WV	78	LOUISVILLE, KY	KANAWHA RIVER IN AQCR 103	$8.46
21	CHARLESTON, WV	79	CINCINNATI, OH	KANAWHA & OHIO IN AQCR 103	$5.45
21	CHARLESTON, WV	79	CINCINNATI, OH	KANAWHA RIVER IN AQCR 103	$6.53
21	CHARLESTON, WV	79	CINCINNATI, OH	MONONGAHELA RIVER IN AQCR 235	$18.10
21	CHARLESTON, WV	83	BLOOMINGTON, IN	KANAWHA & OHIO IN AQCR 103	$7.38
21	CHARLESTON, WV	83	BLOOMINGTON, IN	KANAWHA RIVER IN AQCR 103	$8.46
21	CHARLESTON, WV	88	WATERLOO, IA	KANAWHA & OHIO IN AQCR 103	$17.21
21	CHARLESTON, WV	88	WATERLOO, IA	KANAWHA RIVER IN AQCR 103	$17.68
21	CHARLESTON, WV	94	KANSAS CITY, MO	KANAWHA & OHIO IN AQCR 103	$15.73
21	CHARLESTON, WV	94	KANSAS CITY, MO	KANAWHA RIVER IN AQCR 103	$16.20
21	CHARLESTON, WV	101	HAZARD, KY	KANAWHA & OHIO IN AQCR 103	$7.87
21	CHARLESTON, WV	102	LEXINGTON, KY	KANAWHA & OHIO IN AQCR 103	$6.34
21	CHARLESTON, WV	103	HUNTINGTON, WV	KANAWHA & OHIO IN AQCR 103	$3.46
21	CHARLESTON, WV	103	HUNTINGTON, WV	KANAWHA RIVER IN AQCR 103	$4.54
21	CHARLESTON, WV	103	HUNTINGTON, WV	MONONGAHELA RIVER IN AQCR 235	$16.11
21	CHARLESTON, WV	104	ELIZABETHTOWN, KY	KANAWHA & OHIO IN AQCR 103	$7.38
21	CHARLESTON, WV	104	ELIZABETHTOWN, KY	KANAWHA RIVER IN AQCR 103	$8.46
21	CHARLESTON, WV	105	BOWLING GREEN, KY	KANAWHA & OHIO IN AQCR 103	$9.46
21	CHARLESTON, WV	105	BOWLING GREEN, KY	KANAWHA RIVER IN AQCR 103	$9.92
21	CHARLESTON, WV	128	LA CROSSE, WI	KANAWHA & OHIO IN AQCR 103	$18.74
21	CHARLESTON, WV	134	GREENVILLE, MS	KANAWHA & OHIO IN AQCR 103	$16.39
21	CHARLESTON, WV	134	GREENVILLE, MS	KANAWHA RIVER IN AQCR 103	$16.85
21	CHARLESTON, WV	135	TUPELO, MS	KANAWHA & OHIO IN AQCR 103	$14.54
21	CHARLESTON, WV	135	TUPELO, MS	KANAWHA RIVER IN AQCR 103	$14.99
21	CHARLESTON, WV	137	JEFFERSON CITY, MO	KANAWHA & OHIO IN AQCR 103	$14.03
21	CHARLESTON, WV	137	JEFFERSON CITY, MO	KANAWHA RIVER IN AQCR 103	$14.50
21	CHARLESTON, WV	138	CAPE GIRARDEAU, MO	KANAWHA & OHIO IN AQCR 103	$10.94
21	CHARLESTON, WV	138	CAPE GIRARDEAU, MO	KANAWHA RIVER IN AQCR 103	$12.02
21	CHARLESTON, WV	179	PARKERSBURG, WV	KANAWHA & OHIO IN AQCR 103	$4.92
21	CHARLESTON, WV	179	PARKERSBURG, WV	KANAWHA RIVER IN AQCR 103	$6.64
21	CHARLESTON, WV	179	PARKERSBURG, WV	MONONGAHELA RIVER IN AQCR 235	$14.01
21	CHARLESTON, WV	181	WHEELING, WV	KANAWHA & OHIO IN AQCR 103	$6.42
21	CHARLESTON, WV	181	WHEELING, WV	KANAWHA RIVER IN AQCR 103	$8.12
21	CHARLESTON, WV	181	WHEELING, WV	MONONGAHELA RIVER IN AQCR 235	$12.53
21	CHARLESTON, WV	197	PITTSBURGH, PA	KANAWHA & OHIO IN AQCR 103	$7.31
21	CHARLESTON, WV	197	PITTSBURGH, PA	KANAWHA RIVER IN AQCR 103	$9.01
21	CHARLESTON, WV	197	PITTSBURGH, PA	MONONGAHELA RIVER IN AQCR 235	$11.64
21	CHARLESTON, WV	207	KNOXVILLE, TN	KANAWHA & OHIO IN AQCR 103	$17.83
21	CHARLESTON, WV	207	KNOXVILLE, TN	KANAWHA RIVER IN AQCR 103	$18.30
21	CHARLESTON, WV	208	NASHVILLE, TN	KANAWHA & OHIO IN AQCR 103	$11.72
21	CHARLESTON, WV	208	NASHVILLE, TN	KANAWHA RIVER IN AQCR 103	$12.17
21	CHARLESTON, WV	209	JACKSON, TN	KANAWHA & OHIO IN AQCR 103	$11.70
21	CHARLESTON, WV	209	JACKSON, TN	KANAWHA RIVER IN AQCR 103	$12.17
21	CHARLESTON, WV	234	CHARLESTON, WV	KANAWHA RIVER IN AQCR 103	$3.31
21	CHARLESTON, WV	234	CHARLESTON, WV	KANAWHA & OHIO IN AQCR 103	$3.31
21	CHARLESTON, WV	235	CLARKSBURG, WV	KANAWHA & OHIO IN AQCR 103	$8.33
21	CHARLESTON, WV	235	CLARKSBURG, WV	MONONGAHELA RIVER IN AQCR 235	$11.38
22	CLARKSBURG, WV	78	LOUISVILLE, KY	KANAWHA & OHIO IN AQCR 103	$7.38
22	CLARKSBURG, WV	79	CINCINNATI, OH	KANAWHA & OHIO IN AQCR 103	$5.45
22	CLARKSBURG, WV	79	CINCINNATI, OH	KANAWHA RIVER IN AQCR 103	$6.53
22	CLARKSBURG, WV	83	BLOOMINGTON, IN	KANAWHA & OHIO IN AQCR 103	$7.38
22	CLARKSBURG, WV	102	LEXINGTON, KY	KANAWHA & OHIO IN AQCR 103	$6.34
22	CLARKSBURG, WV	103	HUNTINGTON, WV	KANAWHA & OHIO IN AQCR 103	$3.46
22	CLARKSBURG, WV	103	HUNTINGTON, WV	KANAWHA RIVER IN AQCR 103	$4.54
22	CLARKSBURG, WV	104	ELIZABETHTOWN, KY	KANAWHA & OHIO IN AQCR 103	$7.38
22	CLARKSBURG, WV	179	PARKERSBURG, WV	KANAWHA & OHIO IN AQCR 103	$4.92
22	CLARKSBURG, WV	179	PARKERSBURG, WV	KANAWHA RIVER IN AQCR 103	$6.64
22	CLARKSBURG, WV	181	WHEELING, WV	KANAWHA & OHIO IN AQCR 103	$6.42
22	CLARKSBURG, WV	197	PITTSBURGH, PA	KANAWHA & OHIO IN AQCR 103	$7.31
22	CLARKSBURG, WV	234	CHARLESTON, WV	KANAWHA RIVER IN AQCR 103	$3.31
22	CLARKSBURG, WV	234	CHARLESTON, WV	KANAWHA & OHIO IN AQCR 103	$3.31
23	PHILIPPI, WV	179	PARKERSBURG, WV	OHIO RIVER IN AQCR 181	$10.11
23	PHILIPPI, WV	181	WHEELING, WV	OHIO RIVER IN AQCR 181	$8.61
23	PHILIPPI, WV	181	WHEELING, WV	MONONGAHELA RIVER IN AQCR 235	$10.20
23	PHILIPPI, WV	197	PITTSBURGH, PA	OHIO RIVER IN AQCR 181	$9.20
23	PHILIPPI, WV	197	PITTSBURGH, PA	MONONGAHELA RIVER IN AQCR 235	$9.31
23	PHILIPPI, WV	235	CLARKSBURG, WV	MONONGAHELA RIVER IN AQCR 235	$9.05
23	PHILIPPI, WV	235	CLARKSBURG, WV	OHIO RIVER IN AQCR 181	$10.20
26	PEORIA, IL	65	PEORIA, IL	UPPER MISSISSIPPI RIVER IN AQCR 65	$3.03
26	PEORIA, IL	65	PEORIA, IL	UPPER MISSISSIPPI RIVER IN AQCR 69	$3.82
26	PEORIA, IL	67	CHICAGO, IL	ILLINOIS RIVER IN AQCR 71	$4.62
26	PEORIA, IL	68	DUBUQUE, IA	UPPER MISSISSIPPI RIVER IN AQCR 69	$4.32
26	PEORIA, IL	68	DUBUQUE, IA	UPPER MISSISSIPPI RIVER IN AQCR 65	$5.17
26	PEORIA, IL	69	DAVENPORT, IA	UPPER MISSISSIPPI RIVER IN AQCR 69	$3.14
26	PEORIA, IL	69	DAVENPORT, IA	UPPER MISSISSIPPI RIVER IN AQCR 65	$4.01
26	PEORIA, IL	70	ST. LOUIS, MO	UPPER MISSISSIPPI RIVER IN AQCR 65	$6.06
26	PEORIA, IL	71	LASALLE, IL	ILLINOIS RIVER IN AQCR 71	$3.29
26	PEORIA, IL	75	SPRINGFIELD, IL	ILLINOIS RIVER IN AQCR 71	$4.45

Table F7. Transport rates for coal shipments by combination rail/barge or by barge—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	LOADING DOCK	RATE (1985 $/TON)
26	PEORIA, IL	88	WATERLOO, IA	UPPER MISSISSIPPI RIVER IN AQCR 69	$4.32
26	PEORIA, IL	88	WATERLOO, IA	UPPER MISSISSIPPI RIVER IN AQCR 65	$5.17
26	PEORIA, IL	128	LA CROSSE, WI	UPPER MISSISSIPPI RIVER IN AQCR 69	$5.83
26	PEORIA, IL	137	JEFFERSON CITY, MO	UPPER MISSISSIPPI RIVER IN AQCR 65	$3.88
26	PEORIA, IL	137	JEFFERSON CITY, MO	UPPER MISSISSIPPI RIVER IN AQCR 69	$4.85
26	PEORIA, IL	137	JEFFERSON CITY, MO	ILLINOIS RIVER IN AQCR 71	$6.13
27	OTTAWA, IL	67	CHICAGO, IL	ILLINOIS RIVER IN AQCR 67	$3.05
27	OTTAWA, IL	67	CHICAGO, IL	ILLINOIS RIVER IN AQCR 71	$4.62
27	OTTAWA, IL	71	LASALLE, IL	ILLINOIS RIVER IN AQCR 71	$3.29
27	OTTAWA, IL	71	LASALLE, IL	ILLINOIS RIVER IN AQCR 67	$4.39
27	OTTAWA, IL	75	SPRINGFIELD, IL	ILLINOIS RIVER IN AQCR 71	$4.45
27	OTTAWA, IL	75	SPRINGFIELD, IL	ILLINOIS RIVER IN AQCR 67	$6.00
27	OTTAWA, IL	137	JEFFERSON CITY, MO	ILLINOIS RIVER IN AQCR 71	$6.13
28	TAYLORVILLE, IL	65	PEORIA, IL	ILLINOIS & MISSISSIPPI IN AQCR 75	$5.55
28	TAYLORVILLE, IL	67	CHICAGO, IL	ILLINOIS & MISSISSIPPI IN AQCR 75	$6.15
28	TAYLORVILLE, IL	71	LASALLE, IL	ILLINOIS & MISSISSIPPI IN AQCR 75	$4.81
28	TAYLORVILLE, IL	75	SPRINGFIELD, IL	ILLINOIS & MISSISSIPPI IN AQCR 75	$3.20
28	TAYLORVILLE, IL	137	JEFFERSON CITY, MO	ILLINOIS & MISSISSIPPI IN AQCR 75	$4.52
29	MT. VERNON, IL	7	DECATUR, AL	UPPER MISSISSIPPI RIVER IN AQCR 70	$8.67
29	MT. VERNON, IL	7	DECATUR, AL	CUMBERLAND & OHIO IN AQCR 72	$10.94
29	MT. VERNON, IL	18	MEMPHIS, TN	UPPER MISSISSIPPI RIVER IN AQCR 70	$7.34
29	MT. VERNON, IL	20	JONESBORO, AR	UPPER MISSISSIPPI RIVER IN AQCR 70	$5.55
29	MT. VERNON, IL	65	PEORIA, IL	UPPER MISSISSIPPI RIVER IN AQCR 70	$6.85
29	MT. VERNON, IL	65	PEORIA, IL	ILLINOIS & MISSISSIPPI IN AQCR 75	$10.71
29	MT. VERNON, IL	65	PEORIA, IL	CUMBERLAND & OHIO IN AQCR 72	$11.41
29	MT. VERNON, IL	67	CHICAGO, IL	UPPER MISSISSIPPI RIVER IN AQCR 70	$6.51
29	MT. VERNON, IL	67	CHICAGO, IL	ILLINOIS & MISSISSIPPI IN AQCR 75	$11.30
29	MT. VERNON, IL	68	DUBUQUE, IA	UPPER MISSISSIPPI RIVER IN AQCR 70	$8.99
29	MT. VERNON, IL	69	DAVENPORT, IA	UPPER MISSISSIPPI RIVER IN AQCR 70	$7.80
29	MT. VERNON, IL	70	ST. LOUIS, MO	UPPER MISSISSIPPI RIVER IN AQCR 70	$3.60
29	MT. VERNON, IL	70	ST. LOUIS, MO	CUMBERLAND & OHIO IN AQCR 72	$8.18
29	MT. VERNON, IL	71	LASALLE, IL	UPPER MISSISSIPPI RIVER IN AQCR 70	$5.17
29	MT. VERNON, IL	71	LASALLE, IL	ILLINOIS & MISSISSIPPI IN AQCR 75	$9.96
29	MT. VERNON, IL	72	PADUCAH, KY	UPPER MISSISSIPPI RIVER IN AQCR 70	$4.39
29	MT. VERNON, IL	72	PADUCAH, KY	CUMBERLAND & OHIO IN AQCR 72	$6.95
29	MT. VERNON, IL	72	PADUCAH, KY	ILLINOIS & MISSISSIPPI IN AQCR 75	$11.53
29	MT. VERNON, IL	74	MARION, IL	UPPER MISSISSIPPI RIVER IN AQCR 70	$4.39
29	MT. VERNON, IL	74	MARION, IL	CUMBERLAND & OHIO IN AQCR 72	$6.95
29	MT. VERNON, IL	74	MARION, IL	ILLINOIS & MISSISSIPPI IN AQCR 75	$11.53
29	MT. VERNON, IL	75	SPRINGFIELD, IL	UPPER MISSISSIPPI RIVER IN AQCR 70	$3.56
29	MT. VERNON, IL	75	SPRINGFIELD, IL	ILLINOIS & MISSISSIPPI IN AQCR 75	$8.35
29	MT. VERNON, IL	75	SPRINGFIELD, IL	CUMBERLAND & OHIO IN AQCR 72	$10.18
29	MT. VERNON, IL	77	EVANSVILLE, IN	UPPER MISSISSIPPI RIVER IN AQCR 70	$5.94
29	MT. VERNON, IL	77	EVANSVILLE, IN	CUMBERLAND & OHIO IN AQCR 72	$8.18
29	MT. VERNON, IL	78	LOUISVILLE, KY	UPPER MISSISSIPPI RIVER IN AQCR 70	$7.95
29	MT. VERNON, IL	78	LOUISVILLE, KY	CUMBERLAND & OHIO IN AQCR 72	$10.20
29	MT. VERNON, IL	79	CINCINNATI, OH	UPPER MISSISSIPPI RIVER IN AQCR 70	$9.86
29	MT. VERNON, IL	88	WATERLOO, IA	UPPER MISSISSIPPI RIVER IN AQCR 70	$8.99
29	MT. VERNON, IL	105	BOWLING GREEN, KY	UPPER MISSISSIPPI RIVER IN AQCR 70	$6.61
29	MT. VERNON, IL	128	LA CROSSE, WI	UPPER MISSISSIPPI RIVER IN AQCR 70	$10.52
29	MT. VERNON, IL	137	JEFFERSON CITY, MO	UPPER MISSISSIPPI RIVER IN AQCR 70	$5.81
29	MT. VERNON, IL	137	JEFFERSON CITY, MO	ILLINOIS & MISSISSIPPI IN AQCR 75	$9.67
29	MT. VERNON, IL	137	JEFFERSON CITY, MO	CUMBERLAND & OHIO IN AQCR 72	$10.37
29	MT. VERNON, IL	138	CAPE GIRARDEAU, MO	UPPER MISSISSIPPI RIVER IN AQCR 70	$4.39
29	MT. VERNON, IL	138	CAPE GIRARDEAU, MO	CUMBERLAND & OHIO IN AQCR 72	$6.95
29	MT. VERNON, IL	138	CAPE GIRARDEAU, MO	ILLINOIS & MISSISSIPPI IN AQCR 75	$11.53
29	MT. VERNON, IL	208	NASHVILLE, TN	UPPER MISSISSIPPI RIVER IN AQCR 70	$5.79
29	MT. VERNON, IL	208	NASHVILLE, TN	CUMBERLAND & OHIO IN AQCR 72	$8.03
29	MT. VERNON, IL	209	JACKSON, TN	UPPER MISSISSIPPI RIVER IN AQCR 70	$5.77
30	TUSCOLA, IL	65	PEORIA, IL	ILLINOIS & MISSISSIPPI IN AQCR 75	$8.06
30	TUSCOLA, IL	67	CHICAGO, IL	ILLINOIS RIVER IN AQCR 71	$7.93
30	TUSCOLA, IL	70	ST. LOUIS, MO	UPPER MISSISSIPPI RIVER IN AQCR 70	$8.10
30	TUSCOLA, IL	71	LASALLE, IL	ILLINOIS RIVER IN AQCR 71	$6.59
30	TUSCOLA, IL	71	LASALLE, IL	ILLINOIS & MISSISSIPPI IN AQCR 75	$7.31
30	TUSCOLA, IL	75	SPRINGFIELD, IL	ILLINOIS & MISSISSIPPI IN AQCR 75	$5.70
30	TUSCOLA, IL	75	SPRINGFIELD, IL	ILLINOIS RIVER IN AQCR 71	$7.76
30	TUSCOLA, IL	75	SPRINGFIELD, IL	UPPER MISSISSIPPI RIVER IN AQCR 70	$8.06
30	TUSCOLA, IL	77	EVANSVILLE, IN	GREEN & OHIO IN AQCR 77	$8.20
30	TUSCOLA, IL	137	JEFFERSON CITY, MO	ILLINOIS & MISSISSIPPI IN AQCR 75	$7.02
31	HARRISBURG, IL	4	BIRMINGHAM, AL	CUMBERLAND & OHIO IN AQCR 72	$12.64
31	HARRISBURG, IL	5	MOBILE, AL	CUMBERLAND & OHIO IN AQCR 72	$9.99
31	HARRISBURG, IL	7	DECATUR, AL	CUMBERLAND & OHIO IN AQCR 72	$7.14
31	HARRISBURG, IL	16	LITTLE ROCK, AR	CUMBERLAND & OHIO IN AQCR 72	$11.85
31	HARRISBURG, IL	18	MEMPHIS, TN	CUMBERLAND & OHIO IN AQCR 72	$5.79
31	HARRISBURG, IL	20	JONESBORO, AR	CUMBERLAND & OHIO IN AQCR 72	$4.03
31	HARRISBURG, IL	55	CHATTANOOGA, TN	CUMBERLAND & OHIO IN AQCR 72	$9.01
31	HARRISBURG, IL	65	PEORIA, IL	CUMBERLAND & OHIO IN AQCR 72	$7.61
31	HARRISBURG, IL	67	CHICAGO, IL	CUMBERLAND & OHIO IN AQCR 72	$9.33
31	HARRISBURG, IL	68	DUBUQUE, IA	CUMBERLAND & OHIO IN AQCR 72	$9.75
31	HARRISBURG, IL	69	DAVENPORT, IA	CUMBERLAND & OHIO IN AQCR 72	$8.56
31	HARRISBURG, IL	70	ST. LOUIS, MO	CUMBERLAND & OHIO IN AQCR 72	$4.39
31	HARRISBURG, IL	71	LASALLE, IL	CUMBERLAND & OHIO IN AQCR 72	$7.99
31	HARRISBURG, IL	72	PADUCAH, KY	CUMBERLAND & OHIO IN AQCR 72	$3.16
31	HARRISBURG, IL	74	MARION, IL	CUMBERLAND & OHIO IN AQCR 72	$3.16

Table F7. Transport rates for coal shipments by combination rail/barge or by barge—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	LOADING DOCK	RATE (1985 $/TON)
31	HARRISBURG, IL	75	SPRINGFIELD, IL	CUMBERLAND & OHIO IN AQCR 72	$6.38
31	HARRISBURG, IL	77	EVANSVILLE, IN	CUMBERLAND & OHIO IN AQCR 72	$4.39
31	HARRISBURG, IL	78	LOUISVILLE, KY	CUMBERLAND & OHIO IN AQCR 72	$6.40
31	HARRISBURG, IL	79	CINCINNATI, OH	CUMBERLAND & OHIO IN AQCR 72	$8.31
31	HARRISBURG, IL	83	BLOOMINGTON, IN	CUMBERLAND & OHIO IN AQCR 72	$6.40
31	HARRISBURG, IL	88	WATERLOO, IA	CUMBERLAND & OHIO IN AQCR 72	$9.75
31	HARRISBURG, IL	93	CRESTON, IA	CUMBERLAND & OHIO IN AQCR 72	$12.21
31	HARRISBURG, IL	94	KANSAS CITY, MO	CUMBERLAND & OHIO IN AQCR 72	$8.27
31	HARRISBURG, IL	101	HAZARD, KY	CUMBERLAND & OHIO IN AQCR 72	$11.34
31	HARRISBURG, IL	102	LEXINGTON, KY	CUMBERLAND & OHIO IN AQCR 72	$9.84
31	HARRISBURG, IL	103	HUNTINGTON, WV	CUMBERLAND & OHIO IN AQCR 72	$10.30
31	HARRISBURG, IL	104	ELIZABETHTOWN, KY	CUMBERLAND & OHIO IN AQCR 72	$6.40
31	HARRISBURG, IL	105	BOWLING GREEN, KY	CUMBERLAND & OHIO IN AQCR 72	$5.09
31	HARRISBURG, IL	128	LA CROSSE, WI	CUMBERLAND & OHIO IN AQCR 72	$11.28
31	HARRISBURG, IL	131	MINNEAPOLIS, MN	CUMBERLAND & OHIO IN AQCR 72	$12.53
31	HARRISBURG, IL	134	GREENVILLE, MS	CUMBERLAND & OHIO IN AQCR 72	$8.93
31	HARRISBURG, IL	135	TUPELO, MS	CUMBERLAND & OHIO IN AQCR 72	$7.06
31	HARRISBURG, IL	137	JEFFERSON CITY, MO	CUMBERLAND & OHIO IN AQCR 72	$6.57
31	HARRISBURG, IL	138	CAPE GIRARDEAU, MO	CUMBERLAND & OHIO IN AQCR 72	$3.16
31	HARRISBURG, IL	179	PARKERSBURG, WV	CUMBERLAND & OHIO IN AQCR 72	$12.40
31	HARRISBURG, IL	207	KNOXVILLE, TN	CUMBERLAND & OHIO IN AQCR 72	$10.37
31	HARRISBURG, IL	208	NASHVILLE, TN	CUMBERLAND & OHIO IN AQCR 72	$4.24
31	HARRISBURG, IL	209	JACKSON, TN	CUMBERLAND & OHIO IN AQCR 72	$4.24
31	HARRISBURG, IL	234	CHARLESTON, WV	CUMBERLAND & OHIO IN AQCR 72	$10.79
32	SULLIVAN, IN	77	EVANSVILLE, IN	GREEN & OHIO IN AQCR 77	$11.85
32	SULLIVAN, IN	105	BOWLING GREEN, KY	GREEN & OHIO IN AQCR 77	$12.15
33	MORGANFIELD, KY	5	MOBILE, AL	GREEN & OHIO IN AQCR 77	$11.53
33	MORGANFIELD, KY	7	DECATUR, AL	GREEN & OHIO IN AQCR 77	$8.69
33	MORGANFIELD, KY	7	DECATUR, AL	OHIO RIVER IN AQCR 78	$10.68
33	MORGANFIELD, KY	18	MEMPHIS, TN	GREEN & OHIO IN AQCR 77	$7.34
33	MORGANFIELD, KY	18	MEMPHIS, TN	OHIO RIVER IN AQCR 78	$9.35
33	MORGANFIELD, KY	20	JONESBORO, AR	GREEN & OHIO IN AQCR 77	$5.58
33	MORGANFIELD, KY	20	JONESBORO, AR	OHIO RIVER IN AQCR 78	$7.57
33	MORGANFIELD, KY	20	JONESBORO, AR	CUMBERLAND & OHIO IN AQCR 72	$12.32
33	MORGANFIELD, KY	55	CHATTANOOGA, TN	GREEN & OHIO IN AQCR 77	$10.56
33	MORGANFIELD, KY	55	CHATTANOOGA, TN	OHIO RIVER IN AQCR 78	$12.57
33	MORGANFIELD, KY	65	PEORIA, IL	GREEN & OHIO IN AQCR 77	$9.16
33	MORGANFIELD, KY	65	PEORIA, IL	OHIO RIVER IN AQCR 78	$11.15
33	MORGANFIELD, KY	67	CHICAGO, IL	GREEN & OHIO IN AQCR 77	$10.88
33	MORGANFIELD, KY	68	DUBUQUE, IA	GREEN & OHIO IN AQCR 77	$11.30
33	MORGANFIELD, KY	69	DAVENPORT, IA	GREEN & OHIO IN AQCR 77	$10.11
33	MORGANFIELD, KY	69	DAVENPORT, IA	OHIO RIVER IN AQCR 78	$12.13
33	MORGANFIELD, KY	70	ST. LOUIS, MO	GREEN & OHIO IN AQCR 77	$5.94
33	MORGANFIELD, KY	70	ST. LOUIS, MO	OHIO RIVER IN AQCR 78	$7.93
33	MORGANFIELD, KY	70	ST. LOUIS, MO	CUMBERLAND & OHIO IN AQCR 72	$12.68
33	MORGANFIELD, KY	71	LASALLE, IL	GREEN & OHIO IN AQCR 77	$9.54
33	MORGANFIELD, KY	71	LASALLE, IL	OHIO RIVER IN AQCR 78	$11.55
33	MORGANFIELD, KY	72	PADUCAH, KY	GREEN & OHIO IN AQCR 77	$4.79
33	MORGANFIELD, KY	72	PADUCAH, KY	OHIO RIVER IN AQCR 78	$6.97
33	MORGANFIELD, KY	72	PADUCAH, KY	CUMBERLAND & OHIO IN AQCR 72	$11.45
33	MORGANFIELD, KY	74	MARION, IL	GREEN & OHIO IN AQCR 77	$4.79
33	MORGANFIELD, KY	74	MARION, IL	OHIO RIVER IN AQCR 78	$6.97
33	MORGANFIELD, KY	74	MARION, IL	CUMBERLAND & OHIO IN AQCR 72	$11.45
33	MORGANFIELD, KY	75	SPRINGFIELD, IL	GREEN & OHIO IN AQCR 77	$7.93
33	MORGANFIELD, KY	75	SPRINGFIELD, IL	OHIO RIVER IN AQCR 78	$9.94
33	MORGANFIELD, KY	77	EVANSVILLE, IN	GREEN & OHIO IN AQCR 77	$3.24
33	MORGANFIELD, KY	77	EVANSVILLE, IN	OHIO RIVER IN AQCR 78	$5.43
33	MORGANFIELD, KY	77	EVANSVILLE, IN	CUMBERLAND & OHIO IN AQCR 72	$12.68
33	MORGANFIELD, KY	78	LOUISVILLE, KY	OHIO RIVER IN AQCR 78	$3.41
33	MORGANFIELD, KY	78	LOUISVILLE, KY	GREEN & OHIO IN AQCR 77	$4.85
33	MORGANFIELD, KY	79	CINCINNATI, OH	OHIO RIVER IN AQCR 78	$4.77
33	MORGANFIELD, KY	79	CINCINNATI, OH	GREEN & OHIO IN AQCR 77	$6.76
33	MORGANFIELD, KY	83	BLOOMINGTON, IN	OHIO RIVER IN AQCR 78	$3.41
33	MORGANFIELD, KY	83	BLOOMINGTON, IN	GREEN & OHIO IN AQCR 77	$4.85
33	MORGANFIELD, KY	88	WATERLOO, IA	GREEN & OHIO IN AQCR 77	$11.30
33	MORGANFIELD, KY	94	KANSAS CITY, MO	GREEN & OHIO IN AQCR 77	$9.82
33	MORGANFIELD, KY	94	KANSAS CITY, MO	OHIO RIVER IN AQCR 78	$11.81
33	MORGANFIELD, KY	101	HAZARD, KY	OHIO RIVER IN AQCR 78	$7.78
33	MORGANFIELD, KY	101	HAZARD, KY	GREEN & OHIO IN AQCR 77	$9.79
33	MORGANFIELD, KY	102	LEXINGTON, KY	OHIO RIVER IN AQCR 78	$6.28
33	MORGANFIELD, KY	102	LEXINGTON, KY	GREEN & OHIO IN AQCR 77	$8.29
33	MORGANFIELD, KY	103	HUNTINGTON, WV	OHIO RIVER IN AQCR 78	$6.76
33	MORGANFIELD, KY	103	HUNTINGTON, WV	GREEN & OHIO IN AQCR 77	$8.76
33	MORGANFIELD, KY	104	ELIZABETHTOWN, KY	OHIO RIVER IN AQCR 78	$3.41
33	MORGANFIELD, KY	104	ELIZABETHTOWN, KY	GREEN & OHIO IN AQCR 77	$4.85
33	MORGANFIELD, KY	105	BOWLING GREEN, KY	GREEN & OHIO IN AQCR 77	$3.54
33	MORGANFIELD, KY	105	BOWLING GREEN, KY	OHIO RIVER IN AQCR 78	$5.55
33	MORGANFIELD, KY	134	GREENVILLE, MS	GREEN & OHIO IN AQCR 77	$10.47
33	MORGANFIELD, KY	134	GREENVILLE, MS	OHIO RIVER IN AQCR 78	$12.49
33	MORGANFIELD, KY	135	TUPELO, MS	GREEN & OHIO IN AQCR 77	$8.61
33	MORGANFIELD, KY	135	TUPELO, MS	OHIO RIVER IN AQCR 78	$10.62
33	MORGANFIELD, KY	137	JEFFERSON CITY, MO	GREEN & OHIO IN AQCR 77	$8.12
33	MORGANFIELD, KY	137	JEFFERSON CITY, MO	OHIO RIVER IN AQCR 78	$10.13
33	MORGANFIELD, KY	138	CAPE GIRARDEAU, MO	GREEN & OHIO IN AQCR 77	$4.79

Table F7. Transport rates for coal shipments by combination rail/barge or by barge—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	LOADING DOCK	RATE (1985 $/TON)
33	MORGANFIELD, KY	138	CAPE GIRARDEAU, MO	OHIO RIVER IN AQCR 78	$6.97
33	MORGANFIELD, KY	138	CAPE GIRARDEAU, MO	CUMBERLAND & OHIO IN AQCR 72	$11.45
33	MORGANFIELD, KY	179	PARKERSBURG, WV	OHIO RIVER IN AQCR 78	$8.84
33	MORGANFIELD, KY	179	PARKERSBURG, WV	GREEN & OHIO IN AQCR 77	$10.85
33	MORGANFIELD, KY	181	WHEELING, WV	OHIO RIVER IN AQCR 78	$10.32
33	MORGANFIELD, KY	181	WHEELING, WV	GREEN & OHIO IN AQCR 77	$12.34
33	MORGANFIELD, KY	197	PITTSBURGH, PA	OHIO RIVER IN AQCR 78	$11.21
33	MORGANFIELD, KY	207	KNOXVILLE, TN	GREEN & OHIO IN AQCR 77	$11.91
33	MORGANFIELD, KY	208	NASHVILLE, TN	GREEN & OHIO IN AQCR 77	$5.79
33	MORGANFIELD, KY	208	NASHVILLE, TN	OHIO RIVER IN AQCR 78	$7.80
33	MORGANFIELD, KY	208	NASHVILLE, TN	CUMBERLAND & OHIO IN AQCR 72	$12.53
33	MORGANFIELD, KY	209	JACKSON, TN	GREEN & OHIO IN AQCR 77	$5.79
33	MORGANFIELD, KY	209	JACKSON, TN	OHIO RIVER IN AQCR 78	$7.78
33	MORGANFIELD, KY	209	JACKSON, TN	CUMBERLAND & OHIO IN AQCR 72	$12.53
33	MORGANFIELD, KY	234	CHARLESTON, WV	OHIO RIVER IN AQCR 78	$7.23
33	MORGANFIELD, KY	234	CHARLESTON, WV	GREEN & OHIO IN AQCR 77	$9.24
33	MORGANFIELD, KY	235	CLARKSBURG, WV	OHIO RIVER IN AQCR 78	$12.23
34	MADISONVILLE, KY	5	MOBILE, AL	CUMBERLAND & OHIO IN AQCR 72	$9.99
34	MADISONVILLE, KY	7	DECATUR, AL	CUMBERLAND & OHIO IN AQCR 72	$7.14
34	MADISONVILLE, KY	7	DECATUR, AL	GREEN & OHIO IN AQCR 77	$8.69
34	MADISONVILLE, KY	18	MEMPHIS, TN	CUMBERLAND & OHIO IN AQCR 72	$5.79
34	MADISONVILLE, KY	18	MEMPHIS, TN	GREEN & OHIO IN AQCR 77	$7.34
34	MADISONVILLE, KY	20	JONESBORO, AR	CUMBERLAND & OHIO IN AQCR 72	$4.03
34	MADISONVILLE, KY	20	JONESBORO, AR	GREEN & OHIO IN AQCR 77	$5.58
34	MADISONVILLE, KY	55	CHATTANOOGA, TN	CUMBERLAND & OHIO IN AQCR 72	$9.01
34	MADISONVILLE, KY	55	CHATTANOOGA, TN	GREEN & OHIO IN AQCR 77	$10.56
34	MADISONVILLE, KY	65	PEORIA, IL	CUMBERLAND & OHIO IN AQCR 72	$7.61
34	MADISONVILLE, KY	65	PEORIA, IL	GREEN & OHIO IN AQCR 77	$9.16
34	MADISONVILLE, KY	67	CHICAGO, IL	CUMBERLAND & OHIO IN AQCR 72	$9.33
34	MADISONVILLE, KY	68	DUBUQUE, IA	CUMBERLAND & OHIO IN AQCR 72	$9.75
34	MADISONVILLE, KY	69	DAVENPORT, IA	CUMBERLAND & OHIO IN AQCR 72	$8.56
34	MADISONVILLE, KY	69	DAVENPORT, IA	GREEN & OHIO IN AQCR 77	$10.11
34	MADISONVILLE, KY	70	ST. LOUIS, MO	CUMBERLAND & OHIO IN AQCR 72	$4.39
34	MADISONVILLE, KY	70	ST. LOUIS, MO	GREEN & OHIO IN AQCR 77	$5.94
34	MADISONVILLE, KY	71	LASALLE, IL	CUMBERLAND & OHIO IN AQCR 72	$7.99
34	MADISONVILLE, KY	71	LASALLE, IL	GREEN & OHIO IN AQCR 77	$9.54
34	MADISONVILLE, KY	72	PADUCAH, KY	CUMBERLAND & OHIO IN AQCR 72	$3.16
34	MADISONVILLE, KY	72	PADUCAH, KY	GREEN & OHIO IN AQCR 77	$4.79
34	MADISONVILLE, KY	72	PADUCAH, KY	CUMBERLAND RIVER IN AQCR 208	$10.20
34	MADISONVILLE, KY	74	MARION, IL	CUMBERLAND & OHIO IN AQCR 72	$3.16
34	MADISONVILLE, KY	74	MARION, IL	GREEN & OHIO IN AQCR 77	$4.79
34	MADISONVILLE, KY	74	MARION, IL	CUMBERLAND RIVER IN AQCR 208	$10.20
34	MADISONVILLE, KY	75	SPRINGFIELD, IL	CUMBERLAND & OHIO IN AQCR 72	$6.38
34	MADISONVILLE, KY	75	SPRINGFIELD, IL	GREEN & OHIO IN AQCR 77	$7.93
34	MADISONVILLE, KY	77	EVANSVILLE, IN	GREEN & OHIO IN AQCR 77	$3.24
34	MADISONVILLE, KY	77	EVANSVILLE, IN	CUMBERLAND & OHIO IN AQCR 72	$4.39
34	MADISONVILLE, KY	78	LOUISVILLE, KY	GREEN & OHIO IN AQCR 77	$4.85
34	MADISONVILLE, KY	78	LOUISVILLE, KY	CUMBERLAND & OHIO IN AQCR 72	$6.40
34	MADISONVILLE, KY	79	CINCINNATI, OH	GREEN & OHIO IN AQCR 77	$6.76
34	MADISONVILLE, KY	79	CINCINNATI, OH	CUMBERLAND & OHIO IN AQCR 72	$8.31
34	MADISONVILLE, KY	83	BLOOMINGTON, IN	GREEN & OHIO IN AQCR 77	$4.85
34	MADISONVILLE, KY	83	BLOOMINGTON, IN	CUMBERLAND & OHIO IN AQCR 72	$6.40
34	MADISONVILLE, KY	88	WATERLOO, IA	CUMBERLAND & OHIO IN AQCR 72	$9.75
34	MADISONVILLE, KY	94	KANSAS CITY, MO	CUMBERLAND & OHIO IN AQCR 72	$8.27
34	MADISONVILLE, KY	94	KANSAS CITY, MO	GREEN & OHIO IN AQCR 77	$9.82
34	MADISONVILLE, KY	101	HAZARD, KY	GREEN & OHIO IN AQCR 77	$9.79
34	MADISONVILLE, KY	102	LEXINGTON, KY	GREEN & OHIO IN AQCR 77	$8.29
34	MADISONVILLE, KY	102	LEXINGTON, KY	CUMBERLAND & OHIO IN AQCR 72	$9.84
34	MADISONVILLE, KY	103	HUNTINGTON, WV	GREEN & OHIO IN AQCR 77	$8.76
34	MADISONVILLE, KY	103	HUNTINGTON, WV	CUMBERLAND & OHIO IN AQCR 72	$10.30
34	MADISONVILLE, KY	104	ELIZABETHTOWN, KY	GREEN & OHIO IN AQCR 77	$4.85
34	MADISONVILLE, KY	104	ELIZABETHTOWN, KY	CUMBERLAND & OHIO IN AQCR 72	$6.40
34	MADISONVILLE, KY	105	BOWLING GREEN, KY	GREEN & OHIO IN AQCR 77	$3.54
34	MADISONVILLE, KY	105	BOWLING GREEN, KY	CUMBERLAND & OHIO IN AQCR 72	$5.09
34	MADISONVILLE, KY	134	GREENVILLE, MS	CUMBERLAND & OHIO IN AQCR 72	$8.93
34	MADISONVILLE, KY	134	GREENVILLE, MS	GREEN & OHIO IN AQCR 77	$10.47
34	MADISONVILLE, KY	135	TUPELO, MS	CUMBERLAND & OHIO IN AQCR 72	$7.06
34	MADISONVILLE, KY	135	TUPELO, MS	GREEN & OHIO IN AQCR 77	$8.61
34	MADISONVILLE, KY	137	JEFFERSON CITY, MO	CUMBERLAND & OHIO IN AQCR 72	$6.57
34	MADISONVILLE, KY	137	JEFFERSON CITY, MO	GREEN & OHIO IN AQCR 77	$8.12
34	MADISONVILLE, KY	138	CAPE GIRARDEAU, MO	CUMBERLAND & OHIO IN AQCR 72	$3.16
34	MADISONVILLE, KY	138	CAPE GIRARDEAU, MO	GREEN & OHIO IN AQCR 77	$4.79
34	MADISONVILLE, KY	138	CAPE GIRARDEAU, MO	CUMBERLAND RIVER IN AQCR 208	$10.20
34	MADISONVILLE, KY	207	KNOXVILLE, TN	CUMBERLAND & OHIO IN AQCR 72	$10.37
34	MADISONVILLE, KY	208	NASHVILLE, TN	CUMBERLAND & OHIO IN AQCR 72	$4.24
34	MADISONVILLE, KY	208	NASHVILLE, TN	GREEN & OHIO IN AQCR 77	$5.79
34	MADISONVILLE, KY	208	NASHVILLE, TN	CUMBERLAND RIVER IN AQCR 208	$10.13
34	MADISONVILLE, KY	209	JACKSON, TN	CUMBERLAND & OHIO IN AQCR 72	$4.24
34	MADISONVILLE, KY	209	JACKSON, TN	GREEN & OHIO IN AQCR 77	$5.79
34	MADISONVILLE, KY	234	CHARLESTON, WV	GREEN & OHIO IN AQCR 77	$9.24
37	MARSHALL, TX	19	MONROE, LA	QUACHITA RIVER IN AQCR 19	$10.79
43	POTEAU, OK	16	LITTLE ROCK, AR	ARKANSAS RIVER IN AQCR 21	$4.58
43	POTEAU, OK	16	LITTLE ROCK, AR	ARKANSAS RIVER IN AQCR 17	$5.53
43	POTEAU, OK	17	FT. SMITH, AR	ARKANSAS RIVER IN AQCR 17	$3.14

Table F7. Transport rates for coal shipments by combination rail/barge or by barge—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	LOADING DOCK	RATE (1985 $/TON)
43	POTEAU, OK	17	FT. SMITH, AR	ARKANSAS RIVER IN AQCR 21	$3.99
43	POTEAU, OK	17	FT. SMITH, AR	ARKANSAS RIVER IN AQCR 186	$10.30
43	POTEAU, OK	18	MEMPHIS, TN	ARKANSAS RIVER IN AQCR 21	$9.07
43	POTEAU, OK	18	MEMPHIS, TN	ARKANSAS RIVER IN AQCR 17	$10.03
43	POTEAU, OK	19	MONROE, LA	ARKANSAS RIVER IN AQCR 21	$10.52
43	POTEAU, OK	19	MONROE, LA	ARKANSAS RIVER IN AQCR 17	$11.47
43	POTEAU, OK	20	JONESBORO, AR	ARKANSAS RIVER IN AQCR 21	$10.83
43	POTEAU, OK	21	CLARKSVILLE, AR	ARKANSAS RIVER IN AQCR 21	$3.03
43	POTEAU, OK	21	CLARKSVILLE, AR	ARKANSAS RIVER IN AQCR 17	$3.79
43	POTEAU, OK	21	CLARKSVILLE, AR	ARKANSAS RIVER IN AQCR 186	$11.26
43	POTEAU, OK	106	NEW ORLEANS, LA	ARKANSAS RIVER IN AQCR 21	$10.43
43	POTEAU, OK	106	NEW ORLEANS, LA	ARKANSAS RIVER IN AQCR 17	$11.38
43	POTEAU, OK	186	TULSA, OK	ARKANSAS RIVER IN AQCR 17	$4.22
43	POTEAU, OK	186	TULSA, OK	ARKANSAS RIVER IN AQCR 21	$5.05
43	POTEAU, OK	186	TULSA, OK	ARKANSAS RIVER IN AQCR 186	$9.24
43	POTEAU, OK	188	MCALESTER, OK	ARKANSAS RIVER IN AQCR 17	$3.14
43	POTEAU, OK	188	MCALESTER, OK	ARKANSAS RIVER IN AQCR 21	$3.99
43	POTEAU, OK	188	MCALESTER, OK	ARKANSAS RIVER IN AQCR 186	$10.30
46	MUSKOGEE, OK	17	FT. SMITH, AR	ARKANSAS RIVER IN AQCR 186	$4.16
46	MUSKOGEE, OK	186	TULSA, OK	ARKANSAS RIVER IN AQCR 186	$3.10
46	MUSKOGEE, OK	188	MCALESTER, OK	ARKANSAS RIVER IN AQCR 186	$4.16
47	PITTSBURGH, KS	17	FT. SMITH, AR	ARKANSAS RIVER IN AQCR 186	$9.03
47	PITTSBURGH, KS	186	TULSA, OK	ARKANSAS RIVER IN AQCR 186	$7.97
47	PITTSBURGH, KS	188	MCALESTER, OK	ARKANSAS RIVER IN AQCR 186	$9.03
49	MACON, MO	65	PEORIA, IL	UPPER MISSISSIPPI RIVER IN AQCR 65	$3.03
49	MACON, MO	65	PEORIA, IL	MISSISSIPPI & MISSOURI IN AQCR 137	$4.20
49	MACON, MO	68	DUBUQUE, IA	UPPER MISSISSIPPI RIVER IN AQCR 65	$5.17
49	MACON, MO	69	DAVENPORT, IA	UPPER MISSISSIPPI RIVER IN AQCR 65	$4.01
49	MACON, MO	69	DAVENPORT, IA	MISSISSIPPI & MISSOURI IN AQCR 137	$5.17
49	MACON, MO	70	ST. LOUIS, MO	MISSISSIPPI & MISSOURI IN AQCR 137	$5.05
49	MACON, MO	70	ST. LOUIS, MO	UPPER MISSISSIPPI RIVER IN AQCR 70	$5.96
49	MACON, MO	70	ST. LOUIS, MO	UPPER MISSISSIPPI RIVER IN AQCR 65	$6.06
49	MACON, MO	75	SPRINGFIELD, IL	MISSISSIPPI & MISSOURI IN AQCR 137	$5.75
49	MACON, MO	75	SPRINGFIELD, IL	UPPER MISSISSIPPI RIVER IN AQCR 70	$5.91
49	MACON, MO	88	WATERLOO, IA	UPPER MISSISSIPPI RIVER IN AQCR 65	$5.17
49	MACON, MO	137	JEFFERSON CITY, MO	MISSISSIPPI & MISSOURI IN AQCR 137	$3.18
49	MACON, MO	137	JEFFERSON CITY, MO	UPPER MISSISSIPPI RIVER IN AQCR 65	$3.88
56	ALBIA, IA	65	PEORIA, IL	UPPER MISSISSIPPI RIVER IN AQCR 65	$3.03
56	ALBIA, IA	65	PEORIA, IL	UPPER MISSISSIPPI RIVER IN AQCR 69	$3.82
56	ALBIA, IA	68	DUBUQUE, IA	UPPER MISSISSIPPI RIVER IN AQCR 69	$4.32
56	ALBIA, IA	68	DUBUQUE, IA	UPPER MISSISSIPPI RIVER IN AQCR 65	$5.17
56	ALBIA, IA	69	DAVENPORT, IA	UPPER MISSISSIPPI RIVER IN AQCR 69	$3.14
56	ALBIA, IA	69	DAVENPORT, IA	UPPER MISSISSIPPI RIVER IN AQCR 65	$4.01
56	ALBIA, IA	88	WATERLOO, IA	UPPER MISSISSIPPI RIVER IN AQCR 69	$4.32
56	ALBIA, IA	88	WATERLOO, IA	UPPER MISSISSIPPI RIVER IN AQCR 65	$5.17
56	ALBIA, IA	137	JEFFERSON CITY, MO	UPPER MISSISSIPPI RIVER IN AQCR 65	$3.88
56	ALBIA, IA	137	JEFFERSON CITY, MO	UPPER MISSISSIPPI RIVER IN AQCR 69	$4.85
62	GUNNISON, CO	20	JONESBORO, AR	UPPER MISSISSIPPI RIVER IN AQCR 70	$26.84
62	GUNNISON, CO	65	PEORIA, IL	UPPER MISSISSIPPI RIVER IN AQCR 70	$28.13
62	GUNNISON, CO	67	CHICAGO, IL	UPPER MISSISSIPPI RIVER IN AQCR 70	$27.79
62	GUNNISON, CO	70	ST. LOUIS, MO	UPPER MISSISSIPPI RIVER IN AQCR 70	$24.89
62	GUNNISON, CO	71	LASALLE, IL	UPPER MISSISSIPPI RIVER IN AQCR 70	$26.46
62	GUNNISON, CO	74	MARION, IL	UPPER MISSISSIPPI RIVER IN AQCR 70	$25.67
62	GUNNISON, CO	75	SPRINGFIELD, IL	UPPER MISSISSIPPI RIVER IN AQCR 70	$24.85
62	GUNNISON, CO	137	JEFFERSON CITY, MO	UPPER MISSISSIPPI RIVER IN AQCR 70	$27.09
62	GUNNISON, CO	138	CAPE GIRARDEAU, MO	UPPER MISSISSIPPI RIVER IN AQCR 70	$25.67
62	GUNNISON, CO	208	NASHVILLE, TN	UPPER MISSISSIPPI RIVER IN AQCR 70	$27.07
62	GUNNISON, CO	209	JACKSON, TN	UPPER MISSISSIPPI RIVER IN AQCR 70	$27.05
67	SHERIDAN & JOHNSON CTY, WY	65	PEORIA, IL	UPPER MISSISSIPPI RIVER IN AQCR 128	$21.22
67	SHERIDAN & JOHNSON CTY, WY	65	PEORIA, IL	UPPER MISSISSIPPI RIVER IN AQCR 69	$25.27
67	SHERIDAN & JOHNSON CTY, WY	65	PEORIA, IL	UPPER MISSISSIPPI RIVER IN AQCR 68	$25.99
67	SHERIDAN & JOHNSON CTY, WY	65	PEORIA, IL	MISSISSIPPI & MISSOURI IN AQCR 137	$28.94
67	SHERIDAN & JOHNSON CTY, WY	65	PEORIA, IL	UPPER MISSISSIPPI RIVER IN AQCR 131	$29.28
67	SHERIDAN & JOHNSON CTY, WY	65	PEORIA, IL	UPPER MISSISSIPPI RIVER IN AQCR 70	$31.10
67	SHERIDAN & JOHNSON CTY, WY	67	CHICAGO, IL	UPPER MISSISSIPPI RIVER IN AQCR 128	$28.11
67	SHERIDAN & JOHNSON CTY, WY	67	CHICAGO, IL	UPPER MISSISSIPPI RIVER IN AQCR 70	$30.76
67	SHERIDAN & JOHNSON CTY, WY	67	CHICAGO, IL	UPPER MISSISSIPPI RIVER IN AQCR 69	$32.16
67	SHERIDAN & JOHNSON CTY, WY	67	CHICAGO, IL	UPPER MISSISSIPPI RIVER IN AQCR 68	$32.88
67	SHERIDAN & JOHNSON CTY, WY	67	CHICAGO, IL	MISSISSIPPI & MISSOURI IN AQCR 137	$33.43
67	SHERIDAN & JOHNSON CTY, WY	67	CHICAGO, IL	UPPER MISSISSIPPI RIVER IN AQCR 131	$36.00
70	PRICE, UT	79	CINCINNATI, OH	UPPER MISSISSIPPI RIVER IN AQCR 70	$34.51
92	CARBON CTY, WY	67	CHICAGO, IL	UPPER MISSISSIPPI RIVER IN AQCR 128	$28.81
92	CARBON CTY, WY	67	CHICAGO, IL	UPPER MISSISSIPPI RIVER IN AQCR 70	$30.06
92	CARBON CTY, WY	67	CHICAGO, IL	UPPER MISSISSIPPI RIVER IN AQCR 69	$31.97
92	CARBON CTY, WY	67	CHICAGO, IL	MISSISSIPPI & MISSOURI IN AQCR 137	$32.71
92	CARBON CTY, WY	67	CHICAGO, IL	UPPER MISSISSIPPI RIVER IN AQCR 68	$33.14
92	CARBON CTY, WY	67	CHICAGO, IL	UPPER MISSISSIPPI RIVER IN AQCR 131	$37.08
93	MOFFAT & ROUTT CTY, CO	5	MOBILE, AL	UPPER MISSISSIPPI RIVER IN AQCR 70	$31.33
93	MOFFAT & ROUTT CTY, CO	7	DECATUR, AL	UPPER MISSISSIPPI RIVER IN AQCR 70	$28.49
93	MOFFAT & ROUTT CTY, CO	18	MEMPHIS, TN	UPPER MISSISSIPPI RIVER IN AQCR 70	$27.16
93	MOFFAT & ROUTT CTY, CO	20	JONESBORO, AR	UPPER MISSISSIPPI RIVER IN AQCR 70	$25.38
93	MOFFAT & ROUTT CTY, CO	55	CHATTANOOGA, TN	UPPER MISSISSIPPI RIVER IN AQCR 70	$30.38
93	MOFFAT & ROUTT CTY, CO	65	PEORIA, IL	UPPER MISSISSIPPI RIVER IN AQCR 70	$26.67
93	MOFFAT & ROUTT CTY, CO	67	CHICAGO, IL	UPPER MISSISSIPPI RIVER IN AQCR 70	$26.33

Table F7. Transport rates for coal shipments by combination rail/barge or by barge—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	LOADING DOCK	RATE (1985 $/TON)
93	MOFFAT & ROUTT CTY, CO	68	DUBUQUE, IA	UPPER MISSISSIPPI RIVER IN AQCR 70	$28.81
93	MOFFAT & ROUTT CTY, CO	69	DAVENPORT, IA	UPPER MISSISSIPPI RIVER IN AQCR 70	$27.62
93	MOFFAT & ROUTT CTY, CO	70	ST. LOUIS, MO	UPPER MISSISSIPPI RIVER IN AQCR 70	$23.43
93	MOFFAT & ROUTT CTY, CO	71	LASALLE, IL	UPPER MISSISSIPPI RIVER IN AQCR 70	$24.99
93	MOFFAT & ROUTT CTY, CO	72	PADUCAH, KY	UPPER MISSISSIPPI RIVER IN AQCR 70	$24.21
93	MOFFAT & ROUTT CTY, CO	74	MARION, IL	UPPER MISSISSIPPI RIVER IN AQCR 70	$24.21
93	MOFFAT & ROUTT CTY, CO	75	SPRINGFIELD, IL	UPPER MISSISSIPPI RIVER IN AQCR 70	$23.38
93	MOFFAT & ROUTT CTY, CO	77	EVANSVILLE, IN	UPPER MISSISSIPPI RIVER IN AQCR 70	$25.76
93	MOFFAT & ROUTT CTY, CO	78	LOUISVILLE, KY	UPPER MISSISSIPPI RIVER IN AQCR 70	$27.77
93	MOFFAT & ROUTT CTY, CO	79	CINCINNATI, OH	UPPER MISSISSIPPI RIVER IN AQCR 70	$29.68
93	MOFFAT & ROUTT CTY, CO	83	BLOOMINGTON, IN	UPPER MISSISSIPPI RIVER IN AQCR 70	$27.77
93	MOFFAT & ROUTT CTY, CO	88	WATERLOO, IA	UPPER MISSISSIPPI RIVER IN AQCR 70	$28.81
93	MOFFAT & ROUTT CTY, CO	102	LEXINGTON, KY	UPPER MISSISSIPPI RIVER IN AQCR 70	$31.19
93	MOFFAT & ROUTT CTY, CO	103	HUNTINGTON, WV	UPPER MISSISSIPPI RIVER IN AQCR 70	$31.67
93	MOFFAT & ROUTT CTY, CO	104	ELIZABETHTOWN, KY	UPPER MISSISSIPPI RIVER IN AQCR 70	$27.77
93	MOFFAT & ROUTT CTY, CO	105	BOWLING GREEN, KY	UPPER MISSISSIPPI RIVER IN AQCR 70	$26.44
93	MOFFAT & ROUTT CTY, CO	128	LA CROSSE, WI	UPPER MISSISSIPPI RIVER IN AQCR 70	$30.34
93	MOFFAT & ROUTT CTY, CO	131	MINNEAPOLIS, MN	UPPER MISSISSIPPI RIVER IN AQCR 70	$31.59
93	MOFFAT & ROUTT CTY, CO	134	GREENVILLE, MS	UPPER MISSISSIPPI RIVER IN AQCR 70	$30.29
93	MOFFAT & ROUTT CTY, CO	135	TUPELO, MS	UPPER MISSISSIPPI RIVER IN AQCR 70	$28.43
93	MOFFAT & ROUTT CTY, CO	137	JEFFERSON CITY, MO	UPPER MISSISSIPPI RIVER IN AQCR 70	$25.63
93	MOFFAT & ROUTT CTY, CO	138	CAPE GIRARDEAU, MO	UPPER MISSISSIPPI RIVER IN AQCR 70	$24.21
93	MOFFAT & ROUTT CTY, CO	207	KNOXVILLE, TN	UPPER MISSISSIPPI RIVER IN AQCR 70	$31.72
93	MOFFAT & ROUTT CTY, CO	208	NASHVILLE, TN	UPPER MISSISSIPPI RIVER IN AQCR 70	$25.61
93	MOFFAT & ROUTT CTY, CO	209	JACKSON, TN	UPPER MISSISSIPPI RIVER IN AQCR 70	$25.59
95	POWDER RIVER BASIN, MT	18	MEMPHIS, TN	UPPER MISSISSIPPI RIVER IN AQCR 128	$25.38
95	POWDER RIVER BASIN, MT	20	JONESBORO, AR	UPPER MISSISSIPPI RIVER IN AQCR 128	$23.60
95	POWDER RIVER BASIN, MT	65	PEORIA, IL	UPPER MISSISSIPPI RIVER IN AQCR 128	$17.66
95	POWDER RIVER BASIN, MT	65	PEORIA, IL	UPPER MISSISSIPPI RIVER IN AQCR 69	$24.97
95	POWDER RIVER BASIN, MT	65	PEORIA, IL	UPPER MISSISSIPPI RIVER IN AQCR 68	$25.55
95	POWDER RIVER BASIN, MT	65	PEORIA, IL	UPPER MISSISSIPPI RIVER IN AQCR 131	$26.42
95	POWDER RIVER BASIN, MT	65	PEORIA, IL	MISSISSIPPI & MISSOURI IN AQCR 137	$29.79
95	POWDER RIVER BASIN, MT	65	PEORIA, IL	UPPER MISSISSIPPI RIVER IN AQCR 70	$31.95
95	POWDER RIVER BASIN, MT	67	CHICAGO, IL	UPPER MISSISSIPPI RIVER IN AQCR 128	$24.55
95	POWDER RIVER BASIN, MT	67	CHICAGO, IL	UPPER MISSISSIPPI RIVER IN AQCR 70	$31.61
95	POWDER RIVER BASIN, MT	67	CHICAGO, IL	UPPER MISSISSIPPI RIVER IN AQCR 69	$31.86
95	POWDER RIVER BASIN, MT	67	CHICAGO, IL	UPPER MISSISSIPPI RIVER IN AQCR 68	$32.44
95	POWDER RIVER BASIN, MT	67	CHICAGO, IL	UPPER MISSISSIPPI RIVER IN AQCR 131	$33.14
95	POWDER RIVER BASIN, MT	67	CHICAGO, IL	MISSISSIPPI & MISSOURI IN AQCR 137	$34.28
95	POWDER RIVER BASIN, MT	68	DUBUQUE, IA	UPPER MISSISSIPPI RIVER IN AQCR 128	$15.52
95	POWDER RIVER BASIN, MT	68	DUBUQUE, IA	UPPER MISSISSIPPI RIVER IN AQCR 68	$23.70
95	POWDER RIVER BASIN, MT	68	DUBUQUE, IA	UPPER MISSISSIPPI RIVER IN AQCR 131	$24.27
95	POWDER RIVER BASIN, MT	68	DUBUQUE, IA	UPPER MISSISSIPPI RIVER IN AQCR 69	$25.48
95	POWDER RIVER BASIN, MT	68	DUBUQUE, IA	MISSISSIPPI & MISSOURI IN AQCR 137	$31.95
95	POWDER RIVER BASIN, MT	68	DUBUQUE, IA	UPPER MISSISSIPPI RIVER IN AQCR 70	$34.09
95	POWDER RIVER BASIN, MT	69	DAVENPORT, IA	UPPER MISSISSIPPI RIVER IN AQCR 128	$16.71
95	POWDER RIVER BASIN, MT	69	DAVENPORT, IA	UPPER MISSISSIPPI RIVER IN AQCR 69	$24.30
95	POWDER RIVER BASIN, MT	69	DAVENPORT, IA	UPPER MISSISSIPPI RIVER IN AQCR 68	$24.59
95	POWDER RIVER BASIN, MT	70	ST. LOUIS, MO	UPPER MISSISSIPPI RIVER IN AQCR 128	$20.88
95	POWDER RIVER BASIN, MT	71	LASALLE, IL	UPPER MISSISSIPPI RIVER IN AQCR 128	$23.21
95	POWDER RIVER BASIN, MT	74	MARION, IL	UPPER MISSISSIPPI RIVER IN AQCR 128	$22.43
95	POWDER RIVER BASIN, MT	75	SPRINGFIELD, IL	UPPER MISSISSIPPI RIVER IN AQCR 128	$21.60
95	POWDER RIVER BASIN, MT	77	EVANSVILLE, IN	UPPER MISSISSIPPI RIVER IN AQCR 128	$23.98
95	POWDER RIVER BASIN, MT	88	WATERLOO, IA	UPPER MISSISSIPPI RIVER IN AQCR 128	$15.52
95	POWDER RIVER BASIN, MT	88	WATERLOO, IA	UPPER MISSISSIPPI RIVER IN AQCR 68	$23.70
95	POWDER RIVER BASIN, MT	88	WATERLOO, IA	UPPER MISSISSIPPI RIVER IN AQCR 131	$24.27
95	POWDER RIVER BASIN, MT	105	BOWLING GREEN, KY	UPPER MISSISSIPPI RIVER IN AQCR 128	$24.66
95	POWDER RIVER BASIN, MT	128	LA CROSSE, WI	UPPER MISSISSIPPI RIVER IN AQCR 128	$14.46
95	POWDER RIVER BASIN, MT	128	LA CROSSE, WI	UPPER MISSISSIPPI RIVER IN AQCR 131	$22.75
95	POWDER RIVER BASIN, MT	128	LA CROSSE, WI	UPPER MISSISSIPPI RIVER IN AQCR 68	$25.23
95	POWDER RIVER BASIN, MT	128	LA CROSSE, WI	UPPER MISSISSIPPI RIVER IN AQCR 69	$26.99
95	POWDER RIVER BASIN, MT	128	LA CROSSE, WI	MISSISSIPPI & MISSOURI IN AQCR 137	$33.45
95	POWDER RIVER BASIN, MT	128	LA CROSSE, WI	UPPER MISSISSIPPI RIVER IN AQCR 70	$35.62
95	POWDER RIVER BASIN, MT	131	MINNEAPOLIS, MN	UPPER MISSISSIPPI RIVER IN AQCR 128	$15.71
95	POWDER RIVER BASIN, MT	131	MINNEAPOLIS, MN	UPPER MISSISSIPPI RIVER IN AQCR 131	$21.50
95	POWDER RIVER BASIN, MT	131	MINNEAPOLIS, MN	UPPER MISSISSIPPI RIVER IN AQCR 68	$26.48
95	POWDER RIVER BASIN, MT	131	MINNEAPOLIS, MN	UPPER MISSISSIPPI RIVER IN AQCR 69	$28.26
95	POWDER RIVER BASIN, MT	131	MINNEAPOLIS, MN	MISSISSIPPI & MISSOURI IN AQCR 137	$34.73
95	POWDER RIVER BASIN, MT	131	MINNEAPOLIS, MN	UPPER MISSISSIPPI RIVER IN AQCR 70	$36.87
95	POWDER RIVER BASIN, MT	137	JEFFERSON CITY, MO	UPPER MISSISSIPPI RIVER IN AQCR 128	$18.70
95	POWDER RIVER BASIN, MT	138	CAPE GIRARDEAU, MO	UPPER MISSISSIPPI RIVER IN AQCR 128	$22.43
95	POWDER RIVER BASIN, MT	208	NASHVILLE, TN	UPPER MISSISSIPPI RIVER IN AQCR 128	$23.83
95	POWDER RIVER BASIN, MT	209	JACKSON, TN	UPPER MISSISSIPPI RIVER IN AQCR 128	$23.81
96	POWDER RIVER BASIN, WY	65	PEORIA, IL	UPPER MISSISSIPPI RIVER IN AQCR 128	$20.29
96	POWDER RIVER BASIN, WY	65	PEORIA, IL	UPPER MISSISSIPPI RIVER IN AQCR 69	$24.34
96	POWDER RIVER BASIN, WY	65	PEORIA, IL	UPPER MISSISSIPPI RIVER IN AQCR 68	$25.06
96	POWDER RIVER BASIN, WY	68	DUBUQUE, IA	UPPER MISSISSIPPI RIVER IN AQCR 128	$18.15
96	POWDER RIVER BASIN, WY	68	DUBUQUE, IA	UPPER MISSISSIPPI RIVER IN AQCR 68	$23.21
96	POWDER RIVER BASIN, WY	68	DUBUQUE, IA	UPPER MISSISSIPPI RIVER IN AQCR 69	$24.85
96	POWDER RIVER BASIN, WY	69	DAVENPORT, IA	UPPER MISSISSIPPI RIVER IN AQCR 128	$19.33
96	POWDER RIVER BASIN, WY	69	DAVENPORT, IA	UPPER MISSISSIPPI RIVER IN AQCR 69	$23.66
96	POWDER RIVER BASIN, WY	69	DAVENPORT, IA	UPPER MISSISSIPPI RIVER IN AQCR 68	$24.10
96	POWDER RIVER BASIN, WY	70	ST. LOUIS, MO	UPPER MISSISSIPPI RIVER IN AQCR 128	$23.51
96	POWDER RIVER BASIN, WY	74	MARION, IL	UPPER MISSISSIPPI RIVER IN AQCR 128	$25.06

Table F7. Transport rates for coal shipments by combination rail/barge or by barge—Continued

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	LOADING DOCK	RATE (1985 $/TON)
96	POWDER RIVER BASIN, WY	75	SPRINGFIELD, IL	UPPER MISSISSIPPI RIVER IN AQCR 128	$24.23
96	POWDER RIVER BASIN, WY	88	WATERLOO, IA	UPPER MISSISSIPPI RIVER IN AQCR 128	$18.15
96	POWDER RIVER BASIN, WY	88	WATERLOO, IA	UPPER MISSISSIPPI RIVER IN AQCR 68	$23.21
96	POWDER RIVER BASIN, WY	88	WATERLOO, IA	UPPER MISSISSIPPI RIVER IN AQCR 69	$24.85
96	POWDER RIVER BASIN, WY	128	LA CROSSE, WI	UPPER MISSISSIPPI RIVER IN AQCR 128	$17.09
96	POWDER RIVER BASIN, WY	128	LA CROSSE, WI	UPPER MISSISSIPPI RIVER IN AQCR 131	$24.66
96	POWDER RIVER BASIN, WY	128	LA CROSSE, WI	UPPER MISSISSIPPI RIVER IN AQCR 68	$24.74
96	POWDER RIVER BASIN, WY	131	MINNEAPOLIS, MN	UPPER MISSISSIPPI RIVER IN AQCR 128	$18.34
96	POWDER RIVER BASIN, WY	131	MINNEAPOLIS, MN	UPPER MISSISSIPPI RIVER IN AQCR 131	$23.40
96	POWDER RIVER BASIN, WY	137	JEFFERSON CITY, MO	UPPER MISSISSIPPI RIVER IN AQCR 128	$21.33
96	POWDER RIVER BASIN, WY	137	JEFFERSON CITY, MO	UPPER MISSISSIPPI RIVER IN AQCR 69	$25.38
96	POWDER RIVER BASIN, WY	138	CAPE GIRARDEAU, MO	UPPER MISSISSIPPI RIVER IN AQCR 128	$25.06
97	FORT UNION, MT	65	PEORIA, IL	UPPER MISSISSIPPI RIVER IN AQCR 128	$17.98
97	FORT UNION, MT	68	DUBUQUE, IA	UPPER MISSISSIPPI RIVER IN AQCR 128	$15.84
97	FORT UNION, MT	69	DAVENPORT, IA	UPPER MISSISSIPPI RIVER IN AQCR 128	$17.02
97	FORT UNION, MT	88	WATERLOO, IA	UPPER MISSISSIPPI RIVER IN AQCR 128	$15.84
97	FORT UNION, MT	128	LA CROSSE, WI	UPPER MISSISSIPPI RIVER IN AQCR 128	$14.78
97	FORT UNION, MT	131	MINNEAPOLIS, MN	UPPER MISSISSIPPI RIVER IN AQCR 128	$16.03
97	FORT UNION, MT	131	MINNEAPOLIS, MN	UPPER MISSISSIPPI RIVER IN AQCR 131	$17.91
97	FORT UNION, MT	137	JEFFERSON CITY, MO	UPPER MISSISSIPPI RIVER IN AQCR 128	$19.02
98	FORT UNION, ND	68	DUBUQUE, IA	UPPER MISSISSIPPI RIVER IN AQCR 68	$17.94
98	FORT UNION, ND	68	DUBUQUE, IA	UPPER MISSISSIPPI RIVER IN AQCR 128	$18.51
98	FORT UNION, ND	69	DAVENPORT, IA	UPPER MISSISSIPPI RIVER IN AQCR 69	$18.70
98	FORT UNION, ND	69	DAVENPORT, IA	UPPER MISSISSIPPI RIVER IN AQCR 68	$18.83
98	FORT UNION, ND	88	WATERLOO, IA	UPPER MISSISSIPPI RIVER IN AQCR 68	$17.94
98	FORT UNION, ND	88	WATERLOO, IA	UPPER MISSISSIPPI RIVER IN AQCR 128	$18.51
98	FORT UNION, ND	128	LA CROSSE, WI	UPPER MISSISSIPPI RIVER IN AQCR 128	$17.45
98	FORT UNION, ND	131	MINNEAPOLIS, MN	UPPER MISSISSIPPI RIVER IN AQCR 128	$18.70

Table F8. Equivalent transport rates for coal shipments—transmission from mine mouth power plants

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	RATE (1985 $/TON)
3	BIRMINGHAM, AL	4	BIRMINGHAM, AL	$9.23
3	BIRMINGHAM, AL	7	DECATUR, AL	$9.23
8	LEBANON, VA	207	KNOXVILLE, TN	$9.52
8	LEBANON, VA	226	ROANOKE, VA	$9.52
12	SALYERSVILLE, KY	103	HUNTINGTON, WV	$8.60
13	PLEASANTVILLE, OH	176	COLUMBUS, OH	$8.11
13	PLEASANTVILLE, OH	179	PARKERSBURG, WV	$8.11
13	PLEASANTVILLE, OH	182	CHILLICOTHE, OH	$8.11
14	CADIZ, OH	175	MANSFIELD, OH	$8.54
14	CADIZ, OH	176	COLUMBUS, OH	$8.54
14	CADIZ, OH	181	WHEELING, WV	$8.54
14	CADIZ, OH	183	ZANESVILLE, OH	$8.54
16	PITTSBURGH, PA	179	PARKERSBURG, WV	$9.20
16	PITTSBURGH, PA	181	WHEELING, WV	$9.20
16	PITTSBURGH, PA	197	PITTSBURGH, PA	$9.20
16	PITTSBURGH, PA	235	CLARKSBURG, WV	$9.20
17	KITTANNING, PA	178	DUBOIS, PA	$9.41
17	KITTANNING, PA	195	ALTOONA, PA	$9.41
17	KITTANNING, PA	197	PITTSBURGH, PA	$9.41
20	SOMERSET, PA	113	HAGERSTOWN, MD	$9.46
20	SOMERSET, PA	195	ALTOONA, PA	$9.46
20	SOMERSET, PA	232	GASSAWAY, WV	$9.46
20	SOMERSET, PA	233	MARTINSBURG, WV	$9.46
28	TAYLORVILLE, IL	66	DANVILLE, IL	$7.39
28	TAYLORVILLE, IL	74	MARION, IL	$7.39
28	TAYLORVILLE, IL	75	SPRINGFIELD, IL	$7.39
29	MT. VERNON, IL	70	ST. LOUIS, MO	$8.01
29	MT. VERNON, IL	72	PADUCAH, KY	$8.01
29	MT. VERNON, IL	74	MARION, IL	$8.01
30	TUSCOLA, IL	66	DANVILLE, IL	$7.74
30	TUSCOLA, IL	84	TERRA HAUTE, IN	$7.74
32	SULLIVAN, IN	83	BLOOMINGTON, IN	$8.01
32	SULLIVAN, IN	84	TERRA HAUTE, IN	$8.01
33	MORGANFIELD, KY	77	EVANSVILLE, IN	$8.27
33	MORGANFIELD, KY	83	BLOOMINGTON, IN	$8.27
33	MORGANFIELD, KY	104	ELIZABETHTOWN, KY	$8.27
34	MADISONVILLE, KY	72	PADUCAH, KY	$8.55
34	MADISONVILLE, KY	77	EVANSVILLE, IN	$8.55
34	MADISONVILLE, KY	104	ELIZABETHTOWN, KY	$8.55
34	MADISONVILLE, KY	105	BOWLING GREEN, KY	$8.55
38	MT. PLEASANT, TX	22	SHREVEPORT, LA	$4.34
38	MT. PLEASANT, TX	106	NEW ORLEANS, LA	$4.34
39	FAIRFIELD, TX	22	SHREVEPORT, LA	$4.90
39	FAIRFIELD, TX	106	NEW ORLEANS, LA	$4.90
39	FAIRFIELD, TX	212	AUSTIN, TX	$4.90
39	FAIRFIELD, TX	216	HOUSTON, TX	$4.90
48	CLINTON, MO	94	KANSAS CITY, MO	$8.14
48	CLINTON, MO	137	JEFFERSON CITY, MO	$8.14
48	CLINTON, MO	139	SPRINGFIELD, MO	$8.14
51	MOUND CITY, KS	94	KANSAS CITY, MO	$7.33
51	MOUND CITY, KS	95	SALINA, KS	$7.33
51	MOUND CITY, KS	96	TOPEKA, KS	$7.33
51	MOUND CITY, KS	98	WICHITA, KS	$7.33
51	MOUND CITY, KS	99	PITTSBURG, KS	$7.33
62	GUNNISON, CO	14	FLAGSTAFF, AZ	$8.19
62	GUNNISON, CO	35	GRAND JUNCTION, CO	$8.19
62	GUNNISON, CO	38	PUEBLO, CO	$8.19
68	ROCK SPRINGS, WY	243	ROCK SPRINGS, WY	$7.60
70	PRICE, UT	14	FLAGSTAFF, AZ	$8.67
70	PRICE, UT	219	MORGAN, UT	$8.67
80	MINOT, ND	172	BISMARK, ND	$4.55
87	CENTRALIA, WA	193	PORTLAND, OR	$7.56
87	CENTRALIA, WA	228	OLYMPIA, WA	$7.56
87	CENTRALIA, WA	229	SEATTLE, WA	$7.56
90	SAN JUAN CTY, NM	14	FLAGSTAFF, AZ	$6.75
93	MOFFAT & ROUTT CTY, CO	40	STEAMBOAT SPRINGS,CO	$7.49
94	SWEETWATER CTY, WY	243	ROCK SPRINGS, WY	$6.71
95	POWDER RIVER BASIN, MT	140	BILLINGS, MT	$6.44
95	POWDER RIVER BASIN, MT	143	MILES CITY, MT	$6.44
96	POWDER RIVER BASIN, WY	241	CASPER, WY	$5.88
96	POWDER RIVER BASIN, WY	243	ROCK SPRINGS, WY	$5.88
98	FORT UNION, ND	172	BISMARK, ND	$4.55
98	FORT UNION, ND	206	PIERRE, SD	$4.55

Table G1. Sulfur and Btu quality restrictions for coal shipped to metallurgic and export markets

A. Years Prior to 2030

Eastern and Midwestern Coal Supply Regions

- Sulfur content by weight not greater than 1.8%
- Btu content of 13000 btu/lb or greater.

Western Coal Supply Regions

- Only 4 regions allowed as suppliers:

  Raton, NM Supply Region 61
  Gunnison, CO Supply Region 62
  Price, VT Supply Region 70
  McKinley Cty, NM Supply Region 91

- Sulfur content by weight not greater than 1.8%

B. Years After 2030

Eastern and Midwestern Coal Supply Regions

- Sulfur content by weight not greater than 2.0%
- Btu content of 12000 btu/lb or greater

Western Coal Supply Regions

- Only 4 region allowed as supplies (see above)
- Sulfur content by weight not greater than 2.0%

Table H1. SIP standards, according to supply origin and demand destination

(LBS OF SOX PER MILLION BTU HEAT INPUT)

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	1988	1993	1998	2005	2015	2025
3	BIRMINGHAM, AL	1	JACKSON, AL	4.00	4.00	4.00	4.00	4.00	
3	BIRMINGHAM, AL	3	GADSDEN, AL	4.00	4.00	4.00			
3	BIRMINGHAM, AL	4	BIRMINGHAM, AL	4.00	4.00	4.00	4.00	4.00	4.00
3	BIRMINGHAM, AL	5	MOBILE, AL	4.83	4.82	4.82	4.80	4.80	4.80
3	BIRMINGHAM, AL	56	ATLANTA, GA	5.00	5.00	5.00	5.00	5.00	5.00
4	JASPER, TN	3	GADSDEN, AL	4.00	4.00	4.00			
4	JASPER, TN	7	DECATUR, AL	1.06	1.03	1.02	0.97	0.97	
4	JASPER, TN	207	KNOXVILLE, TN	2.80	2.80	2.80	2.80		
7	OAK RIDGE, TN	4	BIRMINGHAM, AL	4.00	4.00	4.00	4.00	4.00	4.00
7	OAK RIDGE, TN	5	MOBILE, AL	4.80	4.80	4.80	4.80	4.80	4.80
7	OAK RIDGE, TN	54	MACON, GA	5.00	5.00	5.00	5.00	5.00	
7	OAK RIDGE, TN	55	CHATTANOOGA, TN	5.00	5.00	5.00	5.00	5.00	5.00
7	OAK RIDGE, TN	56	ATLANTA, GA	5.00	5.00	5.00	5.00	5.00	5.00
7	OAK RIDGE, TN	58	SAVANNAH, GA	5.00	5.00	5.00	5.00	5.00	5.00
7	OAK RIDGE, TN	102	LEXINGTON, KY	6.00	6.00	6.00	6.00	6.00	6.00
7	OAK RIDGE, TN	122	GRAND RAPIDS, MI	2.50	2.50	2.50	2.50	2.50	
7	OAK RIDGE, TN	166	RALEIGH, NC	2.30	2.30	2.30	2.30		
7	OAK RIDGE, TN	167	CHARLOTTE, NC	2.30	2.30	2.30	2.30		
7	OAK RIDGE, TN	170	WILMINGTON, NC	2.30	2.30	2.30	2.30	2.30	
7	OAK RIDGE, TN	171	ASHEVILLE, NC	2.30	2.30	2.30	2.30	2.30	2.30
7	OAK RIDGE, TN	204	GEORGETOWN, SC	3.50	3.50	3.50	3.50	3.50	
7	OAK RIDGE, TN	207	KNOXVILLE, TN	2.92	2.92	2.92	2.95		
7	OAK RIDGE, TN	208	NASHVILLE, TN	5.00	5.00	5.00	5.00		
8	LEBANON, VA	45	PHILADEPHIA, PA	2.30	2.30	2.30	2.30	2.30	
8	LEBANON, VA	58	SAVANNAH, GA	5.00	5.00	5.00	5.00	5.00	5.00
8	LEBANON, VA	207	KNOXVILLE, TN	2.64	2.64	2.64	2.64	2.64	
8	LEBANON, VA	223	NORFOLK, VA	2.38	2.41	2.41	2.58	2.64	
9	PIKEVILLE, KY	4	BIRMINGHAM, AL	4.00	4.00	4.00	4.00	4.00	4.00
9	PIKEVILLE, KY	5	MOBILE, AL	2.24	2.27	2.28	2.31	2.34	2.35
9	PIKEVILLE, KY	7	DECATUR, AL	1.06	1.03	1.02	0.93	0.90	
9	PIKEVILLE, KY	43	NEW YORK, NY	1.11	1.11	1.11	1.11	1.12	
9	PIKEVILLE, KY	45	PHILADEPHIA, PA	2.30	2.30	2.30	2.30	2.30	
9	PIKEVILLE, KY	46	DOVER, DE	3.58	3.50	3.44	3.36	3.23	3.23
9	PIKEVILLE, KY	47	WASHINGTON, DC	1.52	1.52	1.52	1.52	1.52	
9	PIKEVILLE, KY	52	TAMPA, FL	2.51	2.55	2.62	2.77	3.38	6.50
9	PIKEVILLE, KY	53	AUGUSTA, GA	2.30	2.30	2.30	2.30		
9	PIKEVILLE, KY	54	MACON, GA	5.00	5.00	5.00	5.00	5.00	
9	PIKEVILLE, KY	55	CHATTANOOGA, TN	5.00	5.00	5.00	5.00	5.00	5.00
9	PIKEVILLE, KY	56	ATLANTA, GA	5.00	5.00	5.00	5.00	5.00	5.00
9	PIKEVILLE, KY	58	SAVANNAH, GA	3.89	3.88	3.86	3.80	3.76	3.38
9	PIKEVILLE, KY	59	ALBANY, GA	5.00	5.00	5.00	5.00	5.00	
9	PIKEVILLE, KY	65	PEORIA, IL	1.80	1.80	1.80	1.80	1.80	1.80
9	PIKEVILLE, KY	68	DUBUQUE, IA	9.99	9.99	9.99	9.99	9.99	
9	PIKEVILLE, KY	70	ST. LOUIS, MO	2.30	2.30	2.30	2.30	2.30	
9	PIKEVILLE, KY	72	PADUCAH, KY	1.20	1.20	1.20	1.20		
9	PIKEVILLE, KY	79	CINCINNATI, OH	5.22	5.23	5.23	5.19	5.20	4.36
9	PIKEVILLE, KY	102	LEXINGTON, KY	5.45	5.57	5.65	5.77	5.96	6.00
9	PIKEVILLE, KY	103	HUNTINGTON, WV	3.97	3.91	3.86	3.80	3.65	5.12
9	PIKEVILLE, KY	119	BOSTON, MA	2.50	2.49	2.47	2.45	2.42	2.42
9	PIKEVILLE, KY	120	PROVIDENCE, RI	2.42	2.42	2.42	2.42	2.42	2.42
9	PIKEVILLE, KY	122	GRAND RAPIDS, MI	2.73	2.65	2.53	2.32	2.05	1.67
9	PIKEVILLE, KY	123	DETROIT, MI	1.59	1.60	1.61	1.62	1.67	
9	PIKEVILLE, KY	124	TOLEDO, OH	1.66	1.66	1.65	1.64	1.62	1.60
9	PIKEVILLE, KY	125	KALAMAZOO, MI	1.67	1.67	1.67	1.67	1.67	1.67
9	PIKEVILLE, KY	126	MARQUETTE, MI	1.67	1.67	1.67	1.67	1.67	1.67
9	PIKEVILLE, KY	136	GREENSBORO, NC	2.30	2.30	2.30	2.30	2.30	2.30
9	PIKEVILLE, KY	165	HICKORY, NC	2.28	2.28	2.28	2.27	2.27	2.26
9	PIKEVILLE, KY	166	RALEIGH, NC	2.30	2.30	2.30	2.30	2.30	2.30
9	PIKEVILLE, KY	167	CHARLOTTE, NC	2.30	2.30	2.30	2.30	2.30	
9	PIKEVILLE, KY	170	WILMINGTON, NC	2.30	2.30	2.30	2.30	2.30	2.30
9	PIKEVILLE, KY	171	ASHEVILLE, NC	2.30	2.30	2.30	2.30	2.30	2.30
9	PIKEVILLE, KY	173	DAYTON, OH	1.60	1.60	1.60	1.60		
9	PIKEVILLE, KY	174	CLEVELAND, OH	2.25	2.36	2.56	2.72	4.54	5.17
9	PIKEVILLE, KY	181	WHEELING, WV	3.71	3.81	3.92	3.98	4.35	4.46
9	PIKEVILLE, KY	199	CHARLESTON, SC	2.31	2.31	2.31	2.31	2.31	2.30
9	PIKEVILLE, KY	200	COLUMBIA, SC	3.50	3.50	3.50	3.50	3.50	3.50
9	PIKEVILLE, KY	202	SPARTANBURG, SC	2.30	2.30	2.30	2.30		
9	PIKEVILLE, KY	204	GEORGETOWN, SC	2.97	2.91	2.85	2.81	2.53	2.20
9	PIKEVILLE, KY	207	KNOXVILLE, TN	3.66	3.71	3.74	3.82	4.00	
9	PIKEVILLE, KY	208	NASHVILLE, TN	3.78	3.91	4.02	4.44	5.00	5.00
9	PIKEVILLE, KY	223	NORFOLK, VA	2.49	2.52	2.54	2.62	2.64	2.64
9	PIKEVILLE, KY	224	FREDERICKSBURG, VA	2.64	2.64	2.64	2.64		
9	PIKEVILLE, KY	225	RICHMOND, VA	2.64	2.64	2.64	2.64	2.64	
9	PIKEVILLE, KY	226	ROANOKE, VA	2.64	2.64	2.64	2.64		
9	PIKEVILLE, KY	235	CLARKSBURG, WV	3.10	3.10	3.10	3.10	3.10	
10	MIDDLESBORO, KY	1	JACKSON, AL	4.00	4.00	4.00	4.00	4.00	
10	MIDDLESBORO, KY	4	BIRMINGHAM, AL	4.00	4.00	4.00	4.00	4.00	4.00
10	MIDDLESBORO, KY	47	WASHINGTON, DC	1.52	1.52	1.52	1.52	1.52	
10	MIDDLESBORO, KY	52	TAMPA, FL	4.78	4.96	6.90	6.90	6.90	6.90
10	MIDDLESBORO, KY	53	AUGUSTA, GA	2.30	2.30	2.30	2.30		
10	MIDDLESBORO, KY	54	MACON, GA	6.90	6.90	6.90	6.90	6.90	
10	MIDDLESBORO, KY	56	ATLANTA, GA	6.90	6.90	6.90	6.90	6.90	6.90
10	MIDDLESBORO, KY	58	SAVANNAH, GA	3.82	3.81	3.79	3.73	3.68	3.37
10	MIDDLESBORO, KY	59	ALBANY, GA	6.90	6.90	6.90	6.90	6.90	

Table H1. SIP standards, according to supply origin and demand destination—Continued
(LBS OF SOX PER MILLION BTU HEAT INPUT)

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	1988	1993	1998	2005	2015	2025
10	MIDDLESBORO, KY	73	ROCKFORD, IL	9.99	9.99	9.99	9.99		
10	MIDDLESBORO, KY	102	LEXINGTON, KY	6.90	6.90	6.90	6.90	6.90	6.90
10	MIDDLESBORO, KY	103	HUNTINGTON, WV	3.16	3.16	3.16	3.16	3.16	3.16
10	MIDDLESBORO, KY	105	BOWLING GREEN, KY	3.30	3.30	3.30	3.30	3.30	
10	MIDDLESBORO, KY	122	GRAND RAPIDS, MI	1.67	1.67	1.67	1.67	1.67	1.67
10	MIDDLESBORO, KY	124	TOLEDO, OH	1.59	1.59	1.61	1.63		
10	MIDDLESBORO, KY	125	KALAMAZOO, MI	1.67	1.67	1.67	1.67		
10	MIDDLESBORO, KY	162	BUFFALO, NY	2.80	2.80	2.80	2.80		
10	MIDDLESBORO, KY	165	HICKORY, NC	2.28	2.28	2.28	2.28	2.27	2.26
10	MIDDLESBORO, KY	167	CHARLOTTE, NC	2.30	2.30	2.30	2.30		
10	MIDDLESBORO, KY	199	CHARLESTON, SC	3.50	3.50	3.50	3.50	3.50	3.50
10	MIDDLESBORO, KY	200	COLUMBIA, SC	3.50	3.50	3.50	3.50	3.50	3.50
10	MIDDLESBORO, KY	202	SPARTANBURG, SC	2.30	2.30	2.30	2.30		
10	MIDDLESBORO, KY	204	GEORGETOWN, SC	2.63	2.58	2.53	2.47	2.35	2.20
10	MIDDLESBORO, KY	207	KNOXVILLE, TN	2.83	2.83	2.83	2.84		
10	MIDDLESBORO, KY	208	NASHVILLE, TN	3.40	3.40	3.40	3.40		
10	MIDDLESBORO, KY	223	NORFOLK, VA	2.62	2.63	2.63	2.63	2.64	2.64
10	MIDDLESBORO, KY	225	RICHMOND, VA	2.64	2.64	2.64	2.64	2.64	
11	BEATTYVILLE, KY	52	TAMPA, FL	2.10	2.10	2.10	2.10	2.10	
11	BEATTYVILLE, KY	102	LEXINGTON, KY	5.26	5.39	5.51	5.64	5.93	6.00
11	BEATTYVILLE, KY	105	BOWLING GREEN, KY	3.30	3.30	3.30	3.30	3.30	
11	BEATTYVILLE, KY	207	KNOXVILLE, TN	2.80	2.80	2.80	2.80		
12	SALYERSVILLE, KY	5	MOBILE, AL	4.80	4.80	4.80	4.80	4.80	4.80
12	SALYERSVILLE, KY	7	DECATUR, AL	1.18	1.18	1.18	1.18	1.18	
12	SALYERSVILLE, KY	72	PADUCAH, KY	1.20	1.20	1.20	1.20		
12	SALYERSVILLE, KY	77	EVANSVILLE, IN	5.20	5.20	5.20	5.20	5.20	5.20
12	SALYERSVILLE, KY	79	CINCINNATI, OH	5.86	5.90	5.88	5.91	5.71	5.50
12	SALYERSVILLE, KY	102	LEXINGTON, KY	1.80	1.80	1.80	1.80	1.80	
12	SALYERSVILLE, KY	103	HUNTINGTON, WV	5.61	5.59	5.58	5.60	5.57	5.99
12	SALYERSVILLE, KY	122	GRAND RAPIDS, MI	2.41	2.12	2.01	1.87	1.70	1.67
12	SALYERSVILLE, KY	124	TOLEDO, OH	1.55	1.56	1.58	1.61		
12	SALYERSVILLE, KY	166	RALEIGH, NC	2.41	2.41	2.41	2.41		
12	SALYERSVILLE, KY	181	WHEELING, WV	3.96	4.03	4.08	4.03	4.13	2.43
12	SALYERSVILLE, KY	202	SPARTANBURG, SC	2.41	2.41	2.41	2.41		
12	SALYERSVILLE, KY	207	KNOXVILLE, TN	2.80	2.80	2.80	2.80		
12	SALYERSVILLE, KY	208	NASHVILLE, TN	3.70	3.82	3.92	4.36	5.00	5.00
12	SALYERSVILLE, KY	237	GREEN BAY, WI	9.99	9.99	9.99	9.99	9.99	
13	PLEASANTVILLE, OH	5	MOBILE, AL	4.80	4.80	4.80	4.80	4.80	4.80
13	PLEASANTVILLE, OH	79	CINCINNATI, OH	5.83	5.97	5.91	6.16	5.69	5.50
13	PLEASANTVILLE, OH	80	INDIANAPOLIS, IN	6.00	6.00	6.00	6.00	6.00	6.00
13	PLEASANTVILLE, OH	103	HUNTINGTON, WV	7.29	7.27	7.26	7.25	7.24	7.33
13	PLEASANTVILLE, OH	122	GRAND RAPIDS, MI	5.08	5.08	5.08	5.08	5.08	
13	PLEASANTVILLE, OH	176	COLUMBUS, OH	6.04	6.04	6.04	6.04		
13	PLEASANTVILLE, OH	179	PARKERSBURG, WV	6.44	6.37	6.37	6.06	6.34	
13	PLEASANTVILLE, OH	181	WHEELING, WV	6.99	6.50	6.00	5.05	4.01	4.01
13	PLEASANTVILLE, OH	183	ZANESVILLE, OH	4.01	4.01	4.01	4.01	4.01	4.01
13	PLEASANTVILLE, OH	208	NASHVILLE, TN	5.00	5.00	5.00	5.00	5.00	5.00
14	CADIZ, OH	80	INDIANAPOLIS, IN	6.00	6.00	6.00	6.00	6.00	6.00
14	CADIZ, OH	124	TOLEDO, OH	3.81	3.81	3.81	3.81	3.81	
14	CADIZ, OH	174	CLEVELAND, OH	5.01	5.03	5.05	5.05	5.05	5.05
14	CADIZ, OH	176	COLUMBUS, OH	6.04	6.04	6.04	6.04		
14	CADIZ, OH	178	DUBOIS, PA	5.70	5.70	5.70	5.70		
14	CADIZ, OH	179	PARKERSBURG, WV	6.48	6.48	6.48	6.48	6.48	
14	CADIZ, OH	181	WHEELING, WV	7.07	6.70	6.33	5.31	4.09	3.81
14	CADIZ, OH	183	ZANESVILLE, OH	3.81	3.81	3.81	3.81	3.81	3.81
15	YOUNGSTOWN, OH	150	ATLANTIC CITY, NJ	5.85	5.85	5.85	5.85	5.85	
15	YOUNGSTOWN, OH	164	OLEAN, NY	3.80	3.80	3.80	3.80	3.80	
15	YOUNGSTOWN, OH	174	CLEVELAND, OH	3.83	3.87	3.92	4.22	5.20	
15	YOUNGSTOWN, OH	178	DUBOIS, PA	4.91	4.84	4.86	3.80	3.80	
15	YOUNGSTOWN, OH	181	WHEELING, WV	5.31	5.05	4.76	4.40	4.35	4.46
16	PITTSBURGH, PA	5	MOBILE, AL	4.80	4.80	4.80	4.80	4.80	4.80
16	PITTSBURGH, PA	7	DECATUR, AL	3.73	3.73	3.73	3.72	3.73	
16	PITTSBURGH, PA	42	HARTFORD, CT	2.76	2.76	2.76	2.76	2.76	
16	PITTSBURGH, PA	43	NEW YORK, NY	2.76	2.76	2.76	2.76	2.76	
16	PITTSBURGH, PA	45	PHILADEPHIA, PA	2.76	2.76	2.76	2.76	2.76	
16	PITTSBURGH, PA	47	WASHINGTON, DC	2.80	2.80	2.80	2.80	2.80	
16	PITTSBURGH, PA	77	EVANSVILLE, IN	5.20	5.20	5.20	5.20	5.20	5.20
16	PITTSBURGH, PA	79	CINCINNATI, OH	5.69	5.70	5.69	5.64	5.59	5.50
16	PITTSBURGH, PA	103	HUNTINGTON, WV	8.05	7.98	7.90	7.78	6.23	7.12
16	PITTSBURGH, PA	115	BALTIMORE, MD	3.50	3.50	3.50	3.50	3.50	
16	PITTSBURGH, PA	119	BOSTON, MA	2.76	2.76	2.76	2.76	2.76	2.76
16	PITTSBURGH, PA	120	PROVIDENCE, RI	2.76	2.76	2.76	2.76	2.76	2.76
16	PITTSBURGH, PA	121	MANCHESTER, NH	4.00	4.00	4.00	4.00	4.00	
16	PITTSBURGH, PA	122	GRAND RAPIDS, MI	2.76	2.76	2.76	2.76	2.76	
16	PITTSBURGH, PA	124	TOLEDO, OH	2.76	2.76	2.76	2.76	2.76	2.76
16	PITTSBURGH, PA	129	DULUTH, MN	4.00	4.00	4.00	4.00		
16	PITTSBURGH, PA	150	ATLANTIC CITY, NJ	5.85	5.85	5.85	5.85	5.85	
16	PITTSBURGH, PA	151	SCRANTON, PA	3.40	3.42	3.42	3.65	3.70	
16	PITTSBURGH, PA	160	ROCHESTER, NY	3.80	3.80	3.80	3.80		
16	PITTSBURGH, PA	162	BUFFALO, NY	2.80	2.80	2.80	2.80		
16	PITTSBURGH, PA	164	OLEAN, NY	3.80	3.80	3.80	3.80	3.80	
16	PITTSBURGH, PA	174	CLEVELAND, OH	5.46	5.48	5.51	5.52	5.54	5.54
16	PITTSBURGH, PA	176	COLUMBUS, OH	6.04	6.04	6.04	6.04		
16	PITTSBURGH, PA	178	DUBOIS, PA	7.89	8.11	8.10	7.76	2.80	

Table H1. SIP standards, according to supply origin and demand destination—Continued
(LBS OF SOX PER MILLION BTU HEAT INPUT)

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	1988	1993	1998	2005	2015	2025
16	PITTSBURGH, PA	179	PARKERSBURG, WV	2.76	2.76	2.76	2.76	2.76	
16	PITTSBURGH, PA	181	WHEELING, WV	5.90	5.82	5.75	5.57	5.45	2.76
16	PITTSBURGH, PA	183	ZANESVILLE, OH	3.81	3.67	3.49	3.20	2.97	2.76
16	PITTSBURGH, PA	197	PITTSBURGH, PA	2.88	2.99	3.09	3.19	3.37	3.39
16	PITTSBURGH, PA	208	NASHVILLE, TN	5.00	5.00	5.00	5.00	5.00	5.00
16	PITTSBURGH, PA	235	CLARKSBURG, WV	3.42	3.49	3.55	3.69	4.07	5.12
17	KITTANNING, PA	42	HARTFORD, CT	2.97	2.97	2.97	2.97	2.97	
17	KITTANNING, PA	43	NEW YORK, NY	2.97	2.97	2.97	2.97	2.97	
17	KITTANNING, PA	45	PHILADEPHIA, PA	2.97	2.97	2.97	2.97	2.97	
17	KITTANNING, PA	46	DOVER, DE	3.58	3.50	3.44	3.36	3.23	3.23
17	KITTANNING, PA	47	WASHINGTON, DC	3.50	3.50	3.50	3.50	3.50	
17	KITTANNING, PA	73	ROCKFORD, IL	9.99	9.99	9.99	9.99		
17	KITTANNING, PA	116	BRANDYWINE, MD	3.50	3.50	3.50	3.50	3.50	3.50
17	KITTANNING, PA	123	DETROIT, MI	2.97	2.97	2.97	2.97	2.97	
17	KITTANNING, PA	129	DULUTH, MN	4.00	4.00	4.00	4.00		
17	KITTANNING, PA	150	ATLANTIC CITY, NJ	5.85	5.85	5.85	5.85	5.85	
17	KITTANNING, PA	151	SCRANTON, PA	3.64	3.66	3.67	3.69	3.70	3.70
17	KITTANNING, PA	160	ROCHESTER, NY	3.80	3.80	3.80	3.80		
17	KITTANNING, PA	162	BUFFALO, NY	2.97	2.97	2.97	2.97		
17	KITTANNING, PA	163	BINGHAMTON, NY	3.80	3.80	3.80	3.80		
17	KITTANNING, PA	164	OLEAN, NY	3.80	3.80	3.80	3.80	3.80	
17	KITTANNING, PA	178	DUBOIS, PA	3.65	3.63	3.63	3.44	3.37	
17	KITTANNING, PA	179	PARKERSBURG, WV	2.97	2.97	2.97	2.97	2.97	
17	KITTANNING, PA	181	WHEELING, WV	3.71	3.81	3.92	3.98	4.35	4.46
17	KITTANNING, PA	195	ALTOONA, PA	3.70	3.70	3.70	3.70	3.70	3.70
17	KITTANNING, PA	196	HARRISBURG, PA	3.70	3.70	3.70	3.70	3.70	
17	KITTANNING, PA	197	PITTSBURGH, PA	3.70	3.70	3.70	3.70	3.70	3.70
17	KITTANNING, PA	237	GREEN BAY, WI	5.58	5.58	5.58	5.58	5.58	
17	KITTANNING, PA	239	MILWAUKEE, WI	3.28	3.28	3.28	3.28	3.28	
18	SHARON, PA	73	ROCKFORD, IL	9.99	9.99	9.99	9.99	9.99	
18	SHARON, PA	160	ROCHESTER, NY	3.80	3.80	3.80	3.80		
18	SHARON, PA	162	BUFFALO, NY	3.06	3.06	3.06	3.06		
18	SHARON, PA	163	BINGHAMTON, NY	3.80	3.80	3.80	3.80		
18	SHARON, PA	164	OLEAN, NY	3.80	3.80	3.80	3.80	3.80	
18	SHARON, PA	178	DUBOIS, PA	6.81	6.89	6.69	3.75	3.06	
18	SHARON, PA	239	MILWAUKEE, WI	3.28	3.28	3.28	3.28	3.28	
19	STATE COLLEGE, PA	160	ROCHESTER, NY	3.80	3.80	3.80	3.80		
19	STATE COLLEGE, PA	162	BUFFALO, NY	2.80	2.80	2.80	2.80		
19	STATE COLLEGE, PA	163	BINGHAMTON, NY	3.80	3.80	3.80	3.80		
19	STATE COLLEGE, PA	164	OLEAN, NY	3.80	3.80	3.80	3.80	3.80	
19	STATE COLLEGE, PA	178	DUBOIS, PA	3.70	3.70	3.70	3.70	3.70	
19	STATE COLLEGE, PA	195	ALTOONA, PA	3.70	3.70	3.70	3.70		
19	STATE COLLEGE, PA	196	HARRISBURG, PA	3.70	3.70	3.70	3.70		
19	STATE COLLEGE, PA	197	PITTSBURGH, PA	3.70	3.70	3.70	3.70	3.70	3.70
20	SOMERSET, PA	47	WASHINGTON, DC	3.50	3.50	3.50	3.50	3.50	
20	SOMERSET, PA	116	BRANDYWINE, MD	3.50	3.50	3.50	3.50	3.50	3.50
20	SOMERSET, PA	151	SCRANTON, PA	3.00	3.00	3.00	3.00		
20	SOMERSET, PA	178	DUBOIS, PA	3.70	3.70	3.70	3.70	3.70	
20	SOMERSET, PA	195	ALTOONA, PA	3.70	3.70	3.70	3.70		
20	SOMERSET, PA	197	PITTSBURGH, PA	3.70	3.70	3.70	3.70	3.70	3.70
20	SOMERSET, PA	231	ELKINS, WV	2.70	2.70	2.70	2.70	2.70	2.70
20	SOMERSET, PA	233	MARTINSBURG, WV	2.39	2.39	2.39	2.39		
20	SOMERSET, PA	235	CLARKSBURG, WV	3.19	3.19	3.19	3.19		
21	CHARLESTON, WV	43	NEW YORK, NY	2.30	2.30	2.30	2.30	2.30	
21	CHARLESTON, WV	45	PHILADEPHIA, PA	1.56	1.56	1.55	1.55	1.50	
21	CHARLESTON, WV	46	DOVER, DE	3.58	3.50	3.44	3.36	3.23	3.23
21	CHARLESTON, WV	47	WASHINGTON, DC	1.52	1.52	1.52	1.52	1.52	
21	CHARLESTON, WV	52	TAMPA, FL	2.10	2.10	2.10	2.10	2.10	
21	CHARLESTON, WV	58	SAVANNAH, GA	5.00	5.00	5.00	5.00	5.00	5.00
21	CHARLESTON, WV	72	PADUCAH, KY	1.20	1.20	1.20	1.20		
21	CHARLESTON, WV	79	CINCINNATI, OH	5.32	5.39	5.35	5.43	5.22	5.19
21	CHARLESTON, WV	103	HUNTINGTON, WV	3.20	3.20	3.20	3.20	3.21	5.03
21	CHARLESTON, WV	115	BALTIMORE, MD	1.67	1.67	1.67	1.67	1.67	
21	CHARLESTON, WV	119	BOSTON, MA	2.42	2.42	2.42	2.42	2.42	2.42
21	CHARLESTON, WV	120	PROVIDENCE, RI	2.42	2.42	2.42	2.42	2.42	2.42
21	CHARLESTON, WV	122	GRAND RAPIDS, MI	1.67	1.67	1.67	1.67	1.67	
21	CHARLESTON, WV	123	DETROIT, MI	1.66	1.66	1.66	1.66	1.67	
21	CHARLESTON, WV	124	TOLEDO, OH	1.61	1.61	1.61	1.61	1.60	1.60
21	CHARLESTON, WV	126	MARQUETTE, MI	1.67	1.67	1.67	1.67	1.67	1.67
21	CHARLESTON, WV	136	GREENSBORO, NC	2.30	2.30	2.30	2.30	2.30	2.30
21	CHARLESTON, WV	150	ATLANTIC CITY, NJ	1.66	1.66	1.66	1.66	1.66	1.66
21	CHARLESTON, WV	151	SCRANTON, PA	3.00	3.00	3.00	3.00		
21	CHARLESTON, WV	160	ROCHESTER, NY	3.80	3.80	3.80	3.80		
21	CHARLESTON, WV	166	RALEIGH, NC	2.30	2.30	2.30	2.30	2.30	2.30
21	CHARLESTON, WV	167	CHARLOTTE, NC	2.30	2.30	2.30	2.30		
21	CHARLESTON, WV	170	WILMINGTON, NC	2.30	2.30	2.30	2.30	2.30	2.30
21	CHARLESTON, WV	173	DAYTON, OH	1.60	1.60	1.60	1.60		
21	CHARLESTON, WV	174	CLEVELAND, OH	3.06	3.24	3.51	3.72	5.14	5.64
21	CHARLESTON, WV	181	WHEELING, WV	4.56	4.51	4.41	4.13	3.81	2.16
21	CHARLESTON, WV	204	GEORGETOWN, SC	3.50	3.50	3.50	3.50	3.50	
21	CHARLESTON, WV	207	KNOXVILLE, TN	4.00	4.00	4.00	4.00		
21	CHARLESTON, WV	223	NORFOLK, VA	2.44	2.47	2.48	2.60	2.64	2.64
21	CHARLESTON, WV	224	FREDERICKSBURG, VA	2.64	2.64	2.64	2.64		
21	CHARLESTON, WV	225	RICHMOND, VA	2.64	2.64	2.64	2.64	2.64	

Table H1. SIP standards, according to supply origin and demand destination—Continued

(LBS OF SOX PER MILLION BTU HEAT INPUT)

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	1988	1993	1998	2005	2015	2025
21	CHARLESTON, WV	234	CHARLESTON, WV	1.60	1.60	1.60	1.60	1.60	1.60
22	CLARKSBURG, WV	45	PHILADEPHIA, PA	2.48	2.48	2.48	2.48	2.48	
22	CLARKSBURG, WV	79	CINCINNATI, OH	5.30	5.38	5.43	5.45	5.49	5.50
22	CLARKSBURG, WV	103	HUNTINGTON, WV	8.20	8.20	8.20	8.20		
22	CLARKSBURG, WV	151	SCRANTON, PA	3.70	3.70	3.70	3.70	3.70	
22	CLARKSBURG, WV	179	PARKERSBURG, WV	2.58	2.57	2.56	2.55	2.55	
22	CLARKSBURG, WV	235	CLARKSBURG, WV	5.12	5.12	5.12	5.12	5.12	5.12
23	PHILIPPI, WV	42	HARTFORD, CT	2.42	2.42	2.42	2.42	2.42	
23	PHILIPPI, WV	43	NEW YORK, NY	2.30	2.30	2.30	2.30	2.30	
23	PHILIPPI, WV	45	PHILADEPHIA, PA	1.41	1.41	1.41	1.40	1.44	
23	PHILIPPI, WV	46	DOVER, DE	3.58	3.50	3.44	3.36	3.23	3.23
23	PHILIPPI, WV	103	HUNTINGTON, WV	3.20	3.20	3.20	3.20	3.20	
23	PHILIPPI, WV	115	BALTIMORE, MD	3.29	3.27	3.23	3.22	2.05	
23	PHILIPPI, WV	119	BOSTON, MA	2.42	2.42	2.42	2.42	2.42	2.42
23	PHILIPPI, WV	120	PROVIDENCE, RI	2.42	2.42	2.42	2.42	2.42	2.42
23	PHILIPPI, WV	150	ATLANTIC CITY, NJ	5.85	5.85	5.85	5.85	5.85	
23	PHILIPPI, WV	151	SCRANTON, PA	3.00	3.00	3.00	3.43		
23	PHILIPPI, WV	162	BUFFALO, NY	2.80	2.80	2.80	2.80		
23	PHILIPPI, WV	179	PARKERSBURG, WV	2.58	2.57	2.56	2.55	2.55	
23	PHILIPPI, WV	181	WHEELING, WV	7.50	7.50	7.50	7.50	7.50	7.50
23	PHILIPPI, WV	223	NORFOLK, VA	2.64	2.64	2.64	2.64	2.64	2.64
23	PHILIPPI, WV	224	FREDERICKSBURG, VA	2.64	2.64	2.64	2.64		
23	PHILIPPI, WV	225	RICHMOND, VA	2.64	2.64	2.64	2.64	2.64	
26	PEORIA, IL	69	DAVENPORT, IA	6.00	6.00	6.00	6.00	6.00	
26	PEORIA, IL	75	SPRINGFIELD, IL	7.90	7.90	7.90	7.90	7.90	
26	PEORIA, IL	88	WATERLOO, IA	6.00	6.00	6.00	6.00	6.00	
26	PEORIA, IL	92	DES MOINES, IA	5.37	5.37	5.37	5.37	5.37	
27	OTTAWA, IL	75	SPRINGFIELD, IL	6.20	6.20	6.20	6.20	6.20	6.20
28	TAYLORVILLE, IL	65	PEORIA, IL	6.50	6.50	6.50	6.50	6.50	6.50
28	TAYLORVILLE, IL	67	CHICAGO, IL	6.50	6.50	6.50	6.50	6.50	
28	TAYLORVILLE, IL	73	ROCKFORD, IL	9.99	9.99	9.99	9.99	9.99	
28	TAYLORVILLE, IL	75	SPRINGFIELD, IL	7.04	7.01	6.96	6.88	6.61	6.50
29	MT. VERNON, IL	7	DECATUR, AL	2.73	2.73	2.73	2.73	2.73	
29	MT. VERNON, IL	52	TAMPA, FL	6.50	6.50	6.50	6.50	6.50	6.50
29	MT. VERNON, IL	56	ATLANTA, GA	5.00	5.00	5.00	5.00	5.00	5.00
29	MT. VERNON, IL	65	PEORIA, IL	6.00	6.00	6.00	6.00	6.00	
29	MT. VERNON, IL	67	CHICAGO, IL	6.00	6.00	6.00	6.00	6.00	
29	MT. VERNON, IL	68	DUBUQUE, IA	6.56	6.55	6.56	6.13		
29	MT. VERNON, IL	69	DAVENPORT, IA	6.00	6.00	6.00	6.00	6.00	
29	MT. VERNON, IL	70	ST. LOUIS, MO	4.48	4.50	4.49	4.44	4.44	3.84
29	MT. VERNON, IL	71	LASALLE, IL	5.77	5.77	5.77	5.77		
29	MT. VERNON, IL	72	PADUCAH, KY	3.61	3.61	3.61	3.61		
29	MT. VERNON, IL	73	ROCKFORD, IL	9.99	9.99	9.99	9.99		
29	MT. VERNON, IL	74	MARION, IL	7.53	7.73	7.75	8.70	10.70	
29	MT. VERNON, IL	75	SPRINGFIELD, IL	7.90	7.90	7.90	7.90	7.90	
29	MT. VERNON, IL	77	EVANSVILLE, IN	5.10	5.10	5.10	5.10	5.10	5.10
29	MT. VERNON, IL	78	LOUISVILLE, KY	6.00	6.00	6.00	6.00	6.00	
29	MT. VERNON, IL	79	CINCINNATI, OH	5.67	5.67	5.67	5.67	5.67	5.67
29	MT. VERNON, IL	82	SOUTH BEND, IN	5.19	5.23	5.24	5.28	5.30	5.30
29	MT. VERNON, IL	88	WATERLOO, IA	6.00	6.00	6.00	6.00	6.00	
29	MT. VERNON, IL	94	KANSAS CITY, MO	6.11	6.15	6.13	6.06	5.12	3.00
29	MT. VERNON, IL	128	LA CROSSE, WI	9.99	9.99	9.99	9.99	9.99	
29	MT. VERNON, IL	137	JEFFERSON CITY, MO	6.70	6.70	6.70	6.70	6.70	
29	MT. VERNON, IL	138	CAPE GIRARDEAU, MO	10.00	10.00	10.00	10.00	10.00	10.00
29	MT. VERNON, IL	208	NASHVILLE, TN	3.49	3.53	3.57	4.02	5.00	5.00
29	MT. VERNON, IL	239	MILWAUKEE, WI	9.99	9.99	9.99	9.99		
30	TUSCOLA, IL	66	DANVILLE, IL	6.00	6.00	6.00	6.00		
30	TUSCOLA, IL	67	CHICAGO, IL	6.00	6.00	6.00	6.00	6.00	
30	TUSCOLA, IL	75	SPRINGFIELD, IL	7.90	7.90	7.90	7.90	7.90	
30	TUSCOLA, IL	80	INDIANAPOLIS, IN	6.00	6.00	6.00	6.00		
30	TUSCOLA, IL	82	SOUTH BEND, IN	5.19	5.23	5.24	5.28	5.30	5.30
30	TUSCOLA, IL	84	TERRA HAUTE, IN	5.81	5.82	5.82	5.82	5.82	5.83
30	TUSCOLA, IL	128	LA CROSSE, WI	4.00	4.00	4.00	4.00	4.00	
31	HARRISBURG, IL	5	MOBILE, AL	5.78	5.78	5.78	5.78	5.78	5.80
31	HARRISBURG, IL	7	DECATUR, AL	2.23	2.23	2.23	2.23	2.23	
31	HARRISBURG, IL	18	MEMPHIS, TN	4.00	4.00	4.00	4.00	4.00	
31	HARRISBURG, IL	68	DUBUQUE, IA	9.99	9.99	9.99	9.99	9.99	
31	HARRISBURG, IL	70	ST. LOUIS, MO	4.52	4.53	4.53	4.49	4.48	3.45
31	HARRISBURG, IL	71	LASALLE, IL	5.77	5.77	5.77	5.77		
31	HARRISBURG, IL	72	PADUCAH, KY	3.28	3.28	3.28	3.30		
31	HARRISBURG, IL	74	MARION, IL	10.70	10.70	10.70	10.70	10.70	
31	HARRISBURG, IL	77	EVANSVILLE, IN	5.10	5.10	5.10	5.10	5.10	5.10
31	HARRISBURG, IL	78	LOUISVILLE, KY	6.00	6.00	6.00	6.00	6.00	
31	HARRISBURG, IL	79	CINCINNATI, OH	6.13	6.44	6.44	7.82	8.30	
31	HARRISBURG, IL	128	LA CROSSE, WI	2.98	3.00	3.02	3.01	3.15	
31	HARRISBURG, IL	138	CAPE GIRARDEAU, MO	10.00	10.00	10.00	10.00	10.00	10.00
31	HARRISBURG, IL	208	NASHVILLE, TN	5.00	5.00	5.00	5.00	5.00	5.00
31	HARRISBURG, IL	239	MILWAUKEE, WI	9.99	9.99	9.99	9.99		
32	SULLIVAN, IN	66	DANVILLE, IL	6.00	6.00	6.00	6.00		
32	SULLIVAN, IN	73	ROCKFORD, IL	9.99	9.99	9.99	9.99	9.99	
32	SULLIVAN, IN	74	MARION, IL	5.10	5.10	5.10	5.10		
32	SULLIVAN, IN	77	EVANSVILLE, IN	5.31	5.28	5.25	5.21	5.18	5.10
32	SULLIVAN, IN	78	LOUISVILLE, KY	6.00	6.00	6.00	6.00	6.00	
32	SULLIVAN, IN	80	INDIANAPOLIS, IN	5.44	5.44	5.45	5.48	5.51	5.52

Table H1. SIP standards, according to supply origin and demand destination—Continued

(LBS OF SOX PER MILLION BTU HEAT INPUT)

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	1988	1993	1998	2005	2015	2025
32	SULLIVAN, IN	82	SOUTH BEND, IN	5.19	5.23	5.24	5.28	5.30	5.30
32	SULLIVAN, IN	84	TERRA HAUTE, IN	6.47	6.47	6.31	6.52	4.71	
32	SULLIVAN, IN	122	GRAND RAPIDS, MI	2.94	2.94	2.94	2.94	2.94	
32	SULLIVAN, IN	131	MINNEAPOLIS, MN	2.94	2.94	2.94	2.98	3.00	
32	SULLIVAN, IN	237	GREEN BAY, WI	5.58	5.58	5.58	5.58	5.58	
32	SULLIVAN, IN	238	WAUSAU, WI	4.65	4.65	4.65	4.65	4.65	
32	SULLIVAN, IN	240	MADISON, WI	4.25	4.25	4.25	4.25	4.25	
33	MORGANFIELD, KY	5	MOBILE, AL	5.74	5.71	5.69	5.63	5.62	5.65
33	MORGANFIELD, KY	7	DECATUR, AL	3.39	3.39	3.39	3.39	3.39	
33	MORGANFIELD, KY	56	ATLANTA, GA	5.00	5.00	5.00	5.00	5.00	5.00
33	MORGANFIELD, KY	65	PEORIA, IL	6.00	6.00	6.00	6.00	6.00	
33	MORGANFIELD, KY	68	DUBUQUE, IA	9.99	9.99	9.99	9.99	9.99	
33	MORGANFIELD, KY	69	DAVENPORT, IA	6.00	6.00	6.00	6.00	6.00	
33	MORGANFIELD, KY	70	ST. LOUIS, MO	3.39	3.39	3.39	3.39	3.39	
33	MORGANFIELD, KY	73	ROCKFORD, IL	9.99	9.99	9.99	9.99		
33	MORGANFIELD, KY	75	SPRINGFIELD, IL	7.90	7.90	7.90	7.90	7.90	
33	MORGANFIELD, KY	77	EVANSVILLE, IN	5.64	5.63	5.61	5.57	5.53	5.19
33	MORGANFIELD, KY	78	LOUISVILLE, KY	5.91	5.87	5.83	5.77	3.90	3.39
33	MORGANFIELD, KY	79	CINCINNATI, OH	5.83	5.91	5.86	6.03	5.78	5.54
33	MORGANFIELD, KY	80	INDIANAPOLIS, IN	5.70	5.64	5.58	5.42	5.30	5.30
33	MORGANFIELD, KY	83	BLOOMINGTON, IN	7.52	7.52	7.52	7.52		
33	MORGANFIELD, KY	88	WATERLOO, IA	5.00	5.00	5.00	5.00		
33	MORGANFIELD, KY	208	NASHVILLE, TN	4.91	4.93	4.95	4.98	5.00	5.00
34	MADISONVILLE, KY	5	MOBILE, AL	5.14	5.09	5.05	4.94	4.89	4.80
34	MADISONVILLE, KY	7	DECATUR, AL	3.28	3.28	3.28	3.28	3.28	
34	MADISONVILLE, KY	18	MEMPHIS, TN	4.00	4.00	4.00	4.00	4.00	
34	MADISONVILLE, KY	52	TAMPA, FL	6.50	6.50	6.50	6.50	6.50	6.50
34	MADISONVILLE, KY	55	CHATTANOOGA, TN	5.00	5.00	5.00	5.00	5.00	5.00
34	MADISONVILLE, KY	56	ATLANTA, GA	5.00	5.00	5.00	5.00	5.00	
34	MADISONVILLE, KY	68	DUBUQUE, IA	9.96	9.97	9.97	9.98	9.99	
34	MADISONVILLE, KY	72	PADUCAH, KY	3.29	3.50	3.78	4.10	5.32	5.70
34	MADISONVILLE, KY	75	SPRINGFIELD, IL	7.90	7.90	7.90	7.90	7.90	
34	MADISONVILLE, KY	77	EVANSVILLE, IN	5.20	5.20	5.20	5.20	5.20	5.20
34	MADISONVILLE, KY	78	LOUISVILLE, KY	3.28	3.28	3.28	3.28	3.28	3.28
34	MADISONVILLE, KY	79	CINCINNATI, OH	5.88	6.05	5.99	6.39	5.72	5.50
34	MADISONVILLE, KY	83	BLOOMINGTON, IN	7.52	7.52	7.52	7.52		
34	MADISONVILLE, KY	122	GRAND RAPIDS, MI	3.28	3.28	3.28	3.28	3.28	
34	MADISONVILLE, KY	208	NASHVILLE, TN	4.78	4.80	4.82	4.90	5.00	5.00
34	MADISONVILLE, KY	237	GREEN BAY, WI	5.58	5.58	5.58	5.58	5.58	
34	MADISONVILLE, KY	238	WAUSAU, WI	4.65	4.65	4.65	4.65	4.65	
34	MADISONVILLE, KY	239	MILWAUKEE, WI	9.99	9.99	9.99	9.99		
34	MADISONVILLE, KY	240	MADISON, WI	4.25	4.25	4.25	4.25	4.25	
38	MT. PLEASANT, TX	22	SHREVEPORT, LA	3.00	3.00	3.00	3.00	3.00	3.00
39	FAIRFIELD, TX	212	AUSTIN, TX	3.00	3.00	3.00	3.00	3.00	3.00
43	POTEAU, OK	5	MOBILE, AL	4.80	4.80	4.80	4.80	4.80	4.80
43	POTEAU, OK	94	KANSAS CITY, MO	6.19	6.17	6.13	6.10	6.10	
46	MUSKOGEE, OK	52	TAMPA, FL	6.50	6.50	6.50	6.50	6.50	6.50
46	MUSKOGEE, OK	68	DUBUQUE, IA	9.99	9.99	9.99	9.99	9.99	
46	MUSKOGEE, OK	94	KANSAS CITY, MO	6.10	6.10	6.10	6.10	6.10	
46	MUSKOGEE, OK	98	WICHITA, KS	3.00	3.00	3.00	3.00		
46	MUSKOGEE, OK	139	SPRINGFIELD, MO	11.00	10.87	10.70	10.54	9.51	9.20
46	MUSKOGEE, OK	146	GRAND ISLAND, NE	2.50	2.50	2.50	2.50	2.50	
47	PITTSBURGH, KS	94	KANSAS CITY, MO	7.20	7.21	7.21	7.21	7.24	
47	PITTSBURGH, KS	98	WICHITA, KS	4.58	4.58	4.58	4.58	4.58	4.58
47	PITTSBURGH, KS	139	SPRINGFIELD, MO	11.77	11.79	11.82	11.83	11.87	11.88
48	CLINTON, MO	98	WICHITA, KS	5.50	5.50	5.50	5.50	5.50	5.50
48	CLINTON, MO	139	SPRINGFIELD, MO	12.90	12.90	12.90	12.90	12.90	
49	MACON, MO	88	WATERLOO, IA	6.60	6.60	6.60	6.60	6.60	
49	MACON, MO	94	KANSAS CITY, MO	6.60	6.60	6.60	6.60	6.60	
49	MACON, MO	137	JEFFERSON CITY, MO	7.93	7.94	7.95	7.95	7.99	
49	MACON, MO	139	SPRINGFIELD, MO	12.90	12.90	12.90	12.90	12.90	
51	MOUND CITY, KS	98	WICHITA, KS	9.38	9.38	9.38	9.38	9.38	9.38
56	ALBIA, IA	88	WATERLOO, IA	6.69	6.69	6.69	6.69	6.69	
56	ALBIA, IA	92	DES MOINES, IA	6.69	6.69	6.69	6.69	6.69	
57	WINSLOW, AZ	13	LAS VEGAS, NV	1.67	1.67	1.67	1.67	1.67	1.67
57	WINSLOW, AZ	14	FLAGSTAFF, AZ	1.67	1.67	1.67	1.67	1.67	1.67
62	GUNNISON, CO	36	DENVER, CO	1.20	1.20	1.20	1.20	1.20	
62	GUNNISON, CO	40	STEAMBOAT SPRINGS,CO	1.20	1.20	1.20	1.20	1.20	
62	GUNNISON, CO	146	GRAND ISLAND, NE	2.50	2.50	2.50	2.50	2.50	
66	RAWLINS, WY	146	GRAND ISLAND, NE	2.50	2.50	2.50	2.50	2.50	
67	SHERIDAN & JOHNSON CTY, WY	65	PEORIA, IL	1.20	1.20	1.20	1.20	1.20	1.20
67	SHERIDAN & JOHNSON CTY, WY	67	CHICAGO, IL	1.77	1.77	1.77	1.77	1.79	
68	ROCK SPRINGS, WY	243	ROCK SPRINGS, WY	0.85	0.85	0.85	0.85	0.85	0.85
70	PRICE, UT	13	LAS VEGAS, NV	0.91	0.91	0.91	0.91	0.91	
70	PRICE, UT	14	FLAGSTAFF, AZ	1.20	1.20	1.20	1.20	1.20	1.20
70	PRICE, UT	79	CINCINNATI, OH	6.13	6.44	6.44	7.82	8.30	
70	PRICE, UT	220	SALT LAKE CITY, UT	2.00	2.00	2.00	2.00		
87	CENTRALIA, WA	193	PORTLAND, OR	2.90	2.90	2.90	2.90	2.90	2.90
90	SAN JUAN CTY, NM	14	FLAGSTAFF, AZ	0.92	0.92	0.92	0.92	0.92	0.92
91	MCKINLEY CTY, NM	14	FLAGSTAFF, AZ	1.00	1.00	1.00	1.00	1.00	
92	CARBON CTY, WY	67	CHICAGO, IL	1.20	1.20	1.20	1.20	1.20	1.20
92	CARBON CTY, WY	73	ROCKFORD, IL	9.99	9.99	9.99	9.99		
92	CARBON CTY, WY	86	SIOUX CITY, IA	5.00	5.00	5.00	5.00	5.00	5.00
92	CARBON CTY, WY	95	SALINA, KS	3.00	3.00	3.00	3.00	3.00	3.00

Table H1. SIP standards, according to supply origin and demand destination—Continued

(LBS OF SOX PER MILLION BTU HEAT INPUT)

SUP REG #	SUPPLY REGION	DEM REG #	DEMAND REGION	1988	1993	1998	2005	2015	2025
92	CARBON CTY, WY	146	GRAND ISLAND, NE	2.50	2.50	2.50	2.50	2.50	
93	MOFFAT & ROUTT CTY, CO	36	DENVER, CO	1.20	1.20	1.20	1.20	1.20	
93	MOFFAT & ROUTT CTY, CO	38	PUEBLO, CO	1.20	1.20	1.20	1.20	1.20	1.20
93	MOFFAT & ROUTT CTY, CO	40	STEAMBOAT SPRINGS,CO	0.85	0.85	0.85	0.85	0.85	0.85
93	MOFFAT & ROUTT CTY, CO	70	ST. LOUIS, MO	1.80	1.80	1.80	1.80	1.80	
93	MOFFAT & ROUTT CTY, CO	85	OMAHA, NE	2.50	2.50	2.50	2.50		
94	SWEETWATER CTY, WY	67	CHICAGO, IL	1.80	1.80	1.80	1.80	1.80	
94	SWEETWATER CTY, WY	146	GRAND ISLAND, NE	2.50	2.50	2.50	2.50	2.50	
94	SWEETWATER CTY, WY	243	ROCK SPRINGS, WY	0.86	0.86	0.86	0.86	0.86	0.86
95	POWDER RIVER BASIN, MT	65	PEORIA, IL	1.20	1.20	1.20	1.20	1.20	1.20
95	POWDER RIVER BASIN, MT	67	CHICAGO, IL	1.39	1.39	1.40	1.40	1.70	
95	POWDER RIVER BASIN, MT	68	DUBUQUE, IA	9.99	9.99	9.99	9.99	9.99	
95	POWDER RIVER BASIN, MT	123	DETROIT, MI	1.67	1.67	1.67	1.67	1.67	
95	POWDER RIVER BASIN, MT	124	TOLEDO, OH	1.60	1.60	1.60	1.60	1.60	1.60
95	POWDER RIVER BASIN, MT	126	MARQUETTE, MI	1.67	1.67	1.67	1.67	1.67	1.67
95	POWDER RIVER BASIN, MT	128	LA CROSSE, WI	9.99	9.99	9.99	9.99	9.99	
95	POWDER RIVER BASIN, MT	129	DULUTH, MN	4.00	4.00	4.00	4.00	4.00	4.00
95	POWDER RIVER BASIN, MT	131	MINNEAPOLIS, MN	2.70	2.70	2.71	2.72	2.70	
95	POWDER RIVER BASIN, MT	143	MILES CITY, MT	1.44	1.42	1.38	1.34	1.32	1.20
95	POWDER RIVER BASIN, MT	240	MADISON, WI	1.20	1.20	1.20	1.20	1.20	1.20
96	POWDER RIVER BASIN, WY	38	PUEBLO, CO	1.20	1.20	1.20	1.20	1.20	1.20
96	POWDER RIVER BASIN, WY	70	ST. LOUIS, MO	4.68	4.67	4.64	4.56	3.98	2.30
96	POWDER RIVER BASIN, WY	73	ROCKFORD, IL	9.99	9.99	9.99	9.99	9.99	
96	POWDER RIVER BASIN, WY	85	OMAHA, NE	2.98	2.91	2.88	2.74	2.50	
96	POWDER RIVER BASIN, WY	86	SIOUX CITY, IA	5.00	5.00	5.00	5.00	5.00	5.00
96	POWDER RIVER BASIN, WY	88	WATERLOO, IA	5.00	5.00	5.00	5.00		
96	POWDER RIVER BASIN, WY	92	DES MOINES, IA	5.00	5.00	5.00	5.00	5.00	
96	POWDER RIVER BASIN, WY	94	KANSAS CITY, MO	6.10	6.10	6.10	6.10	6.10	
96	POWDER RIVER BASIN, WY	98	WICHITA, KS	3.00	3.00	3.00	3.00	3.00	3.00
96	POWDER RIVER BASIN, WY	128	LA CROSSE, WI	9.99	9.99	9.99	9.99	9.99	
96	POWDER RIVER BASIN, WY	129	DULUTH, MN	4.00	4.00	4.00	4.00	4.00	4.00
96	POWDER RIVER BASIN, WY	131	MINNEAPOLIS, MN	2.75	2.74	2.74	2.73	2.70	
96	POWDER RIVER BASIN, WY	146	GRAND ISLAND, NE	2.50	2.50	2.50	2.50	2.50	
96	POWDER RIVER BASIN, WY	238	WAUSAU, WI	4.65	4.65	4.65	4.65	4.65	
96	POWDER RIVER BASIN, WY	240	MADISON, WI	1.20	1.20	1.20	1.20	1.20	1.20
96	POWDER RIVER BASIN, WY	241	CASPER, WY	0.84	0.84	0.84	0.84	0.84	0.84
97	FORT UNION, MT	143	MILES CITY, MT	2.00	2.00	2.00	2.00		
98	FORT UNION, ND	132	THIEF RIVER FALLS,MN	4.00	4.00	4.00	4.00	4.00	
98	FORT UNION, ND	172	BISMARK, ND	3.00	3.00	3.00	3.00	3.00	3.00
98	FORT UNION, ND	206	PIERRE, SD	3.00	3.00	3.00	3.00	3.00	3.00

Table H2. NSPS discharge limits by demand region
(TONS OF SOX PER YEAR)

DEM REG #		DEMAND REGION	1988	1993	1998	2005	2015	2025
1		JACKSON, AL	2201	2931	3405	6927	6832	14489
3		GADSDEN, AL	961	1451	2556	6350	5549	9824
4		BIRMINGHAM, AL	52997	62774	67579	95567	54395	58599
5		MOBILE, AL	1617	2797	3654	8181	8797	16035
7		DECATUR, AL	1660	2213	851	5206	5485	8761
13		LAS VEGAS, NV	24573	29352	28882	2851	24252	16221
14		FLAGSTAFF, AZ	37477	41120	39105	37692	98242	54082
15		PHOENIX, AZ	3912	6129	26581	8852	48449	60994
16	•	LITTLE ROCK, AR	3090	2952	6702	5318	21888	27331
17		FT. SMITH, AR	23399	23037	21838	8133	18315	12446
18		MEMPHIS, TN	656	989	1217	887	3042	5021
19		MONROE, LA	2805	4105	6395	5252	20460	25255
20		JONESBORO, AR	30831	28428	10816	20090	22656	14434
22		SHREVEPORT, LA	50288	56739	57611	57545	52188	46404
24		LOS ANGELES, CA	1285	12802	11266	14084	19559	21587
28		SACRAMENTO, CA	1104	1032	104	135	1651	1910
29		SAN DIEGO, CA	695	661	66	87	1057	149
30		SAN FRANCISCO, CA	4096	350	384	502	1667	2532
31		FRESNO, CA	245	262	259	279	2525	2920
36		DENVER, CO	1534	555	582	5316	12788	2302
37		GREELEY, CO	4775	4817	4382	4017	1083	1877
38		PUEBLO, CO	2712	2892	2765	3028	8832	13176
40		STEAMBOAT SPRINGS,CO	43017	42620	37774	44930	34195	15705
41		NORWICH, CT	30	43	77	226	881	390
42		HARTFORD, CT	99	151	281	897	2203	7002
43		NEW YORK, NY	2552	1398	2314	9752	18849	71401
45		PHILADEPHIA, PA	66091	15072	15985	27705	24187	10442
46		DOVER, DE	136	426	679	378	498	900
47		WASHINGTON, DC	1593	670	2680	1242	2541	3987
49		JACKSONVILLE, FL	1462	942	1171	5975	3146	3384
50		W. PALM BEACH, FL	5998	11196	24997	36188	12757	21333
52		TAMPA, FL	25016	29520	13175	5790	25070	14221
53		AUGUSTA, GA	275	169	257	706	1309	4211
54		MACON, GA	5265	8708	25727	845	11638	6076
55		CHATTANOOGA, TN	173	336	462	3829	3510	4979
56		ATLANTA, GA	17285	23780	28779	11923	13866	9170
58		SAVANNAH, GA	2222	10369	5923	1777	2964	1918
59		ALBANY, GA	109	303	362	1024	867	2798
62		SPOKANE, WA	2073	759	887	1311	1748	1983
64		BOISE, ID	364	479	567	732	1055	1197
65		PEORIA, IL	37103	41957	41926	10508	7031	3450
66		DANVILLE, IL	49	139	538	1233	899	968
67		CHICAGO, IL	8671	17717	22031	36877	54284	94954
68		DUBUQUE, IA	136	221	270	143	956	1131
69		DAVENPORT, IA	36184	40562	45922	54229	52725	29545
70		ST. LOUIS, MO	2212	2932	3267	5146	7179	10124
71		LASALLE, IL	268	572	718	1623	3097	3361
72		PADUCAH, KY	969	1332	1543	2414	3371	6678
73		ROCKFORD, IL	497	1026	1328	2286	4091	6294
74		MARION, IL	125	268	337	565	1321	1562
75		SPRINGFIELD, IL	249	531	668	1121	1650	2885
77		EVANSVILLE, IN	81019	85686	87029	83141	85722	74444
78		LOUISVILLE, KY	1262	1630	6272	9670	13351	24874
79		CINCINNATI, OH	13050	162000	181690	179415	139460	77127
80		INDIANAPOLIS, IN	1619	794	909	1459	8462	14464
82		SOUTH BEND, IN	404	983	1968	3839	5302	6386
83		BLOOMINGTON, IN	147	263	949	2164	4642	5042
84		TERRA HAUTE, IN	11254	12865	26198	23805	17197	13299
85		OMAHA, NE	12555	14042	15884	17004	5043	2843
86		SIOUX CITY, IA	240	334	396	551	1821	864
88		WATERLOO, IA	661	974	1180	1822	3481	5533
89		MASON CITY, IA	2806	3459	3822	4604	5850	6242
91		OTTUMWA, IA	373	550	666	933	1283	1369
92		DES MOINES, IA	1148	629	762	1084	5120	7613
94		KANSAS CITY, MO	12220	13710	15517	17849	4868	2797
95		SALINA, KS	102955	42470	47970	104417	132298	6699
98		WICHITA, KS	507	1406	2123	3601	4551	6228
102		LEXINGTON, KY	1757	2248	2557	1149	5087	7222
103		HUNTINGTON, WV	137173	29180	8758	85365	54989	36992
105		BOWLING GREEN, KY	208	266	868	1575	2466	4407
106		NEW ORLEANS, LA	103967	98895	118836	28606	142993	130545
107		LEWISTON, ME	1156	2868	1667	3962	14241	15219
109		BANGOR, ME	328	385	808	2427	9334	10550
115		BALTIMORE, MD	9796	11059	11505	19024	14591	10535
117		PITTSFIELD, MA	2399	527	856	1031	1070	1210
119		BOSTON, MA		175	651	461	2017	3795
120		PROVIDENCE, RI		151	404	291	1146	2191
121		MANCHESTER, NH	95	280	486	1068	2078	3398
122		GRAND RAPIDS, MI	50838	59885	60825	13278	10318	7385
123		DETROIT, MI	787	6834	8699	14638	27689	42774
124		TOLEDO, OH	662	385	526	3015	1614	9375
125		KALAMAZOO, MI	294	637	780	1629	3295	4157

Table H2. NSPS discharge limits by demand region—Continued
(TONS OF SOX PER YEAR)

DEM REG #	DEMAND REGION	1988	1993	1998	2005	2015	2025
126	MARQUETTE, MI	17902	21237	21787	16023	4145	3036
127	ST. CLOUD, MN	463	616	615	843	1088	273
128	LA CROSSE, WI	3225	3929	4223	4787	5723	725
129	DULUTH, MN	34439	10347	10422	9490	6884	4667
131	MINNEAPOLIS, MN	2682	5254	1516	2492	4308	3848
132	THIEF RIVER FALLS,MN	2136	1278	1094	754	680	798
136	GREENSBORO, NC	1850	2492	2627	3951	4612	3500
137	JEFFERSON CITY, MO	342	431	456	676	1135	1820
138	CAPE GIRARDEAU, MO	523	658	687	969	1313	1851
139	SPRINGFIELD, MO	27736	8074	9106	10347	9720	4796
143	MILES CITY, MT	15931	4422	3920	3405	2590	1212
144	MISSOULA, MT	4483	1433	1526	2369	905	988
146	GRAND ISLAND, NE	30266	33859	38302	60281	60047	3997
147	WINNEMUCA, NV	13	19	24	35	357	412
148	RENO, NV	3113	1191	1510	3937	5218	6035
149	PLYMOUTH, NH			15	45	61	78
150	ATLANTIC CITY, NJ	69	48	74	590	347	557
151	SCRANTON, PA	498	3078	6852	9477	14113	18693
152	ALBUQUERQUE, NM	888	1209	1841	9248	18882	23783
153	EL PASO, TX	421	513	861	497	8630	1186
156	SOCORRO NM	31	42	65	37	59	74
157	SANTE FE, NM	90	123	187	367	589	742
158	SYRACUSE, NY	3348	2290	5066	3806	1447	4234
159	BURLINGTON, VT	166	737	1425	2633	1344	3932
160	ROCHESTER, NY	61	268	518	1521	1116	3321
161	ALBANY, NY	9779	10356	3152	7067	2079	2209
162	BUFFALO, NY	115	505	837	1139	2013	6219
163	BINGHAMTON, NY		97	157	685	1064	1129
164	OLEAN, NY		160	49	672	1433	775
165	HICKORY, NC	197	365	385	706	982	1789
166	RALEIGH, NC	17683	20762	24774	29817	29832	10206
167	CHARLOTTE, NC	2396	1040	1220	6459	5349	6311
170	WILMINGTON, NC	1962	2481	676	3523	1529	2457
171	ASHEVILLE, NC	768	1035	174	568	2052	1374
172	BISMARK, ND	27375	27109	24014	20799	15668	7012
173	DAYTON, OH	1422	2746	3934	10690	9353	11595
174	CLEVELAND, OH	7254	2840	16256	24422	34846	57402
175	MANSFIELD, OH	2362	4392	1689	6700	3782	11111
176	COLUMBUS, OH	7181	8109	7382	9276	13511	14539
177	LIMA, OH	412	844	3761	5357	4365	5411
178	DUBOIS, PA	65591	74897	23868	23607	63212	44919
179	PARKERSBURG, WV	1994	27293	27063	22181	19808	18035
181	WHEELING, WV	4994	6545	5760	8773	12746	7007
183	ZANESVILLE, OH	368	711	1018	1990	946	3772
184	OKLAHOMA CITY, OK	747	973	1408	1160	4861	6122
185	ENID, OK	27465	25030	22574	39404	39240	1996
186	TULSA, OK	44468	44496	15552	15021	33233	21210
188	MCALESTER, OK	17623	17603	16161	5865	12619	7830
190	BEND, OR			7	11	47	168
191	PENDLETON, OR	717	588	452	268	36	41
193	PORTLAND, OR	39	49	73	120	176	3193
195	ALTOONA, PA	1026	1887	2080	1138	1629	8539
196	HARRISBURG, PA	1067	1964	747	1184	2147	3369
197	PITTSBURGH, PA	2639	4856	5245	3327	12385	21669
199	CHARLESTON, SC	92	294	442	885	1221	2016
200	COLUMBIA, SC	949	431	648	1221	1572	1979
202	SPARTANBURG, SC	840	2020	485	1231	3799	4087
204	GEORGETOWN, SC	16330	5030	4336	9290	6595	6091
206	PIERRE, SD	1335	1602	1742	2247	2844	3217
207	KNOXVILLE, TN	423	658	809	1270	12233	17972
208	NASHVILLE, TN	348	521	2507	3922	5904	9844
209	JACKSON, TN	443	2930	3566	4708	6191	6213
210	WICHITA, FALLS, TX	538	825	599	2315	5046	6356
211	AMARILLO, TX	17043	15633	14300	25858	26466	15255
212	AUSTIN, TX	98493	90087	81899	63514	68788	37399
214	CORPUS CHRISTI, TX	23632	22271	21549	9994	22268	18340
215	DALLAS, TX	4169	7061	12066	24252	38938	49109
216	HOUSTON, TX	125145	117213	112901	49563	121416	90321
217	SAN ANTONIO, TX	50734	46868	43529	35521	42140	23532
220	SALT LAKE CITY, UT	467	6779	7706	14814	8260	9013
222	LYNCHBURG, VA	9070	11858	3595	13936	7097	7444
223	NORFOLK, VA	1951	3608	4563	2427	3438	6286
224	FREDERICKSBURG, VA	1048	524	670	1826	3527	3896
225	RICHMOND, VA	337	617	789	2102	3772	5978
226	ROANOKE, VA	2911	5328	1845	12163	9717	10193
229	SEATTLE, WA	1613	1594	1597	2363	3252	1042
230	YAKIMA, WA	701	596	443	566	220	249
231	ELKINS, WV	107	127	426	617	883	552
232	GASSAWAY, WV	731	290	778	1045	441	866
233	MARTINSBURG, WV	9842	10690	9094	3704	12810	13300
234	CHARLESTON, WV	1551	1844	1717	2254	1076	5837
235	CLARKSBURG, WV	963	1145	365	1324	1907	3451
236	BECKLEY, WV	2150	1610	782	1520	1160	1204

Table H2. NSPS discharge limits by demand region—Continued

(TONS OF SOX PER YEAR)

DEM REG #	DEMAND REGION	1988	1993	1998	2005	2015	2025
237	GREEN BAY, WI	1147	2876	4019	6748	15775	21026
238	WAUSAU, WI	461	1157	1616	2807	6826	8072
239	MILWAUKEE, WI	1273	3192	4460	8493	16088	24853
240	MADISON, WI	202	506	708	1198	1764	2432
241	CASPER, WY	64	77	26	35	49	94
242	CHEYENNE, WY	10678	11302	10667	10662	2906	2301
243	ROCK SPRINGS, WY	9579	9548	8515	2243	15444	979
		1860491	1880147	1880154	1929697	2437063	2106743

Table I1. Boiler capacity utilization schedule

Years (Y) Since Start-up or Initial In-Service Year for Boiler	Weight for Capacity Utilization (1 = Base Load)	Coal Utilization Factor (F) Applied by Year Against 1985 Coal Use (Assumes Y = 18 in 1985)
$Y \leq 15$	1	Year = 1990 F=.86/.97 = .89
$15 < Y \leq 20$	0.97	Year = 1995 F=.68/.97 = .70
$20 < Y \leq 25$	0.86	Year = 2000 F=.47/.97 = .48
$25 < Y \leq 30$	0.68	Year = 2005 F=.26/.97 = .27
$30 < Y \leq 35$	0.47	Year = 2010 F=.17/.97 = .18
$35 < Y \leq 40$	0.26	Year = 2015 F=.10/.97 = .10
$40 < Y \leq 45$	0.17	Year = 2020 F= 0/.97 = 0
$45 < Y \leq 50$	0.10	
$Y > 50$	0.0	

Table I2. Federal regions

Federal Region #	Federal Region	States Contained Within Federal Region
1	New England	Maine
		Vermont
		New Hampshire
		Massachusetts
		Connecticut
		Rhode Island
2	East	New York
		New Jersey
3	Middle Atlantic	Pennsylvania
		Delaware
		Maryland
		District of Columbia
		West Virginia
		Virginia
4	Southeast	Alabama
		Florida
		Georgia
		Kentucky
		Mississippi
		North Carolina
		South Carolina
		Tennessee
5	Great Lakes	Wisconsin
		Michigan
		Minnesota
		Illinois
		Indiana
		Ohio
6	South Central	Arkansas
		Louisiana
		New Mexico
		Oklahoma
		Texas
7	Central	Iowa
		Kansas
		Missouri
		Nebraska
8	Mountain	Colorado
		Montana
		North Dakota
		South Dakota
		Utah
		Wyoming
9	West	California
		Nevada
		Arizona
10	Northwest	Washington
		Oregon
		Idaho

Table 13. Coal demands at the AQCR level, 1988
(THOUSANDS OF TONS OF COAL CONTAINING 24 MILLION BTU PER TON)

DEM REG (AQCR)	DEMAND REGION	SIP (1000 TONS)	NSPS (1000 TONS)	RNSPS (1000 TONS)	MET (1000 TONS)	EXP (1000 TONS)	SYN (1000 TONS)
1	JACKSON, AL	634	368	0	0	0	0
3	GADSDEN, AL	554	160	0	0	0	0
4	BIRMINGHAM, AL	12216	8857	876	2994	0	0
5	MOBILE, AL	4469	270	1632	0	9613	0
7	DECATUR, AL	4802	205	0	0	0	0
13	LAS VEGAS, NV	2848	1889	1283	0	0	0
14	FLAGSTAFF, AZ	15466	9216	4932	0	0	0
15	PHOENIX, AZ	0	962	1109	0	0	0
16	LITTLE ROCK, AR	0	243	644	0	0	0
17	FT. SMITH, AR	0	1957	0	0	0	0
18	MEMPHIS, TN	604	56	1569	0	0	0
19	MONROE, LA	0	220	0	0	0	0
20	JONESBORO, AR	0	2578	934	0	0	0
22	SHREVEPORT, LA	3911	5160	5200	0	0	0
24	LOS ANGELES, CA	0	1083	0	0	1089	0
28	SACRAMENTO, CA	0	84	0	0	0	0
29	SAN DIEGO, CA	0	53	0	0	0	0
30	SAN FRANCISCO, CA	0	310	0	0	0	0
31	FRESNO, CA	0	207	0	0	0	0
36	DENVER, CO	2402	334	728	0	0	0
37	GREELEY, CO	0	969	837	0	0	0
38	PUEBLO, CO	1859	550	0	0	0	0
40	STEAMBOAT SPRINGS,CO	1626	4590	0	0	0	0
41	NORWICH, CT	0	12	20	0	0	0
42	HARTFORD, CT	710	42	0	0	0	0
43	NEW YORK, NY	2330	213	1545	1204	480	0
45	PHILADEPHIA, PA	4178	5506	0	0	4716	0
46	DOVER, DE	726	11	839	0	0	0
47	WASHINGTON, DC	3949	134	0	0	0	0
49	JACKSONVILLE, FL	0	120	0	0	0	0
50	W. PALM BEACH, FL	0	3076	924	0	0	0
52	TAMPA, FL	7722	8454	467	0	0	0
53	AUGUSTA, GA	1616	23	0	0	0	0
54	MACON, GA	4683	3398	2640	0	0	0
55	CHATTANOOGA, TN	11408	90	2299	0	0	0
56	ATLANTA, GA	7507	3723	0	0	0	0
58	SAVANNAH, GA	1509	751	0	0	0	0
59	ALBANY, GA	705	13	0	0	0	0
62	SPOKANE, WA	0	144	0	0	0	0
64	BOISE, ID	0	261	462	0	0	0
65	PEORIA, IL	5677	7529	0	0	0	0
66	DANVILLE, IL	1081	20	0	0	0	0
67	CHICAGO, IL	10583	747	0	2135	42	0
68	DUBUQUE, IA	531	11	0	0	0	0
69	DAVENPORT, IA	1319	3117	0	0	0	0
70	ST. LOUIS, MO	15283	177	0	119	0	0
71	LASALLE, IL	927	23	0	0	0	0
72	PADUCAH, KY	7604	91	0	0	0	0
73	ROCKFORD, IL	1203	39	0	0	0	0
74	MARION, IL	1079	12	871	0	0	0
75	SPRINGFIELD, IL	4549	21	0	0	0	0
77	EVANSVILLE, IN	14918	17703	2059	0	0	0
78	LOUISVILLE, KY	3678	367	1181	919	0	0
79	CINCINNATI, OH	5500	12255	598	0	0	0
80	INDIANAPOLIS, IN	1896	133	0	0	0	0
82	SOUTH BEND, IN	1012	161	5739	9141	0	0
83	BLOOMINGTON, IN	3669	43	0	0	0	0
84	TERRA HAUTE, IN	4234	2528	0	0	0	0
85	OMAHA, NE	873	2548	0	0	0	0
86	SIOUX CITY, IA	1687	49	0	0	0	0
88	WATERLOO, IA	573	55	0	0	0	0
89	MASON CITY, IA	0	235	0	0	0	0
91	OTTUMWA, IA	0	31	980	0	0	0
92	DES MOINES, IA	323	87	0	0	0	0
94	KANSAS CITY, MO	2070	2480	914	0	0	0
95	SALINA, KS	725	7766	987	0	0	0
98	WICHITA, KS	1650	43	0	0	0	0
102	LEXINGTON, KY	1903	147	0	0	0	0
103	HUNTINGTON, WV	19127	14270	0	0	0	0
105	BOWLING GREEN, KY	733	60	0	0	0	0
106	NEW ORLEANS, LA	0	10575	1194	0	8917	0
107	LEWISTON, ME	0	96	0	0	0	0
109	BANGOR, ME	0	138	0	0	0	0
115	BALTIMORE, MD	1265	4123	1280	2410	8177	0
116	BRANDYWINE, MD	1971	0	0	0	0	0
117	PITTSFIELD, MA	0	196	20	0	0	0
119	BOSTON, MA	1289	0	0	0	0	0
120	PROVIDENCE, RI	2624	0	20	0	0	0
121	MANCHESTER, NH	1066	7	0	0	0	0
122	GRAND RAPIDS, MI	5319	3992	2870	0	0	0
123	DETROIT, MI	6997	245	2836	2635	42	0
124	TOLEDO, OH	10045	58	0	0	0	0
125	KALAMAZOO, MI	1202	88	0	0	0	0
126	MARQUETTE, MI	2285	1395	0	0	0	0
127	ST. CLOUD, MN	0	36	1267	0	0	0
128	LA CROSSE, WI	1141	224	0	0	0	0

Table 13. Coal demands at the AQCR level, 1988—Continued

(THOUSANDS OF TONS OF COAL CONTAINING 24 MILLION BTU PER TON)

DEM REG (AQCR)	DEMAND REGION	SIP (1000 TONS)	NSPS (1000 TONS)	RNSPS (1000 TONS)	MET (1000 TONS)	EXP (1000 TONS)	SYN (1000 TONS)
129	DULUTH, MN	1381	2392	0	0	0	0
131	MINNEAPOLIS, MN	1920	209	0	0	0	0
132	THIEF RIVER FALLS,MN	451	181	0	0	0	0
136	GREENSBORO, NC	5765	145	766	0	0	0
137	JEFFERSON CITY, MO	1256	29	0	0	0	0
138	CAPE GIRARDEAU, MO	2697	41	0	0	0	0
139	SPRINGFIELD, MO	1683	1926	0	0	0	0
143	MILES CITY, MT	1288	1182	427	0	0	0
144	MISSOULA, MT	0	311	0	0	0	0
146	GRAND ISLAND, NE	381	3229	2333	0	0	0
147	WINNEMUCA, NV	0	9	501	0	0	0
148	RENO, NV	0	216	0	0	0	0
150	ATLANTIC CITY, NJ	818	6	5457	0	0	0
151	SCRANTON, PA	3016	243	3692	0	0	0
152	ALBUQUERQUE, NM	0	218	0	0	0	0
153	EL PASO, TX	0	104	0	0	0	0
156	SOCORRO NM	0	8	0	0	0	0
157	SANTE FE, NM	0	13	0	0	0	0
158	SYRACUSE, NY	0	1019	5688	0	24	0
159	BURLINGTON, VT	0	14	20	0	0	0
160	ROCHESTER, NY	2200	5	0	0	0	0
161	ALBANY, NY	0	799	0	0	0	0
162	BUFFALO, NY	1851	10	0	0	18	0
163	BINGHAMTON, NY	526	0	0	0	0	0
164	OLEAN, NY	2101	0	0	0	0	0
165	HICKORY, NC	4617	83	3066	0	0	0
166	RALEIGH, NC	4563	5976	1690	0	0	0
167	CHARLOTTE, NC	2308	209	1533	0	0	0
170	WILMINGTON, NC	1324	161	0	0	115	0
171	ASHEVILLE, NC	1304	64	0	0	0	0
172	BISMARK, ND	2558	2315	268	0	0	0
173	DAYTON, OH	485	117	0	0	0	0
174	CLEVELAND, OH	7459	593	0	5393	17318	0
175	MANSFIELD, OH	0	193	0	0	0	0
176	COLUMBUS, OH	200	602	0	0	0	0
177	LIMA, OH	0	343	0	0	0	0
178	DUBOIS, PA	7853	5358	0	0	0	0
179	PARKERSBURG, WV	5482	2010	3351	0	0	0
181	WHEELING, WV	16028	416	0	0	0	0
183	ZANESVILLE, OH	3759	30	448	0	0	0
184	OKLAHOMA CITY, OK	0	64	0	0	0	0
185	ENID, OK	0	5573	687	0	0	0
186	TULSA, OK	0	3719	1361	0	0	0
188	MCALESTER, OK	0	1474	0	0	0	0
191	PENDLETON, OR	0	54	0	0	0	0
193	PORTLAND, OR	3943	41	1402	0	0	0
195	ALTOONA, PA	6134	84	0	0	0	0
196	HARRISBURG, PA	3944	87	0	0	0	0
197	PITTSBURGH, PA	21547	220	1678	8260	0	0
199	CHARLESTON, SC	1802	38	0	0	1150	0
200	COLUMBIA, SC	2158	78	0	0	0	0
202	SPARTANBURG, SC	355	70	0	0	0	0
204	GEORGETOWN, SC	1200	1427	359	0	0	0
206	PIERRE, SD	1186	104	728	0	0	0
207	KNOXVILLE, TN	9635	221	1533	0	0	0
208	NASHVILLE, TN	7506	129	2053	172	0	0
209	JACKSON, TN	0	167	766	0	0	0
210	WICHITA, FALLS, TX	0	46	0	0	0	0
211	AMARILLO, TX	0	3458	1952	0	0	0
212	AUSTIN, TX	4044	8700	5048	0	0	0
213	LAREDO, TX	0	0	0	0	49	0
214	CORPUS CHRISTI, TX	0	2087	0	0	0	0
215	DALLAS, TX	0	359	0	0	0	0
216	HOUSTON, TX	0	10780	0	401	319	0
217	SAN ANTONIO, TX	0	4481	0	0	0	0
220	SALT LAKE CITY, UT	1391	393	0	1371	0	0
222	LYNCHBURG, VA	0	793	0	0	0	0
223	NORFOLK, VA	1352	164	0	913	45934	0
224	FREDERICKSBURG, VA	525	88	2544	0	0	0
225	RICHMOND, VA	2403	142	0	0	0	0
226	ROANOKE, VA	2072	242	0	0	0	0
229	SEATTLE, WA	0	121	462	0	0	0
230	YAKIMA, WA	0	52	0	0	0	0
231	ELKINS, WV	3667	36	0	0	0	0
232	GASSAWAY, WV	0	61	0	0	0	0
233	MARTINSBURG, WV	249	804	0	0	0	0
234	CHARLESTON, WV	7188	130	0	1970	0	0
235	CLARKSBURG, WV	7348	80	0	0	0	0
236	BECKLEY, WV	0	211	1272	0	0	0
237	GREEN BAY, WI	1370	95	0	0	0	0
238	WAUSAU, WI	1340	37	0	0	0	0
239	MILWAUKEE, WI	2918	110	0	0	0	0
240	MADISON, WI	1229	17	0	0	0	0
241	CASPER, WY	2306	13	0	0	0	0
242	CHEYENNE, WY	0	2167	305	0	0	0
243	ROCK SPRINGS, WY	6515	1944	0	0	0	0
		438646	242153	103146	40037	98003	0

Table I4. Coal demands at the AQCR level, 1998

(THOUSANDS OF TONS OF COAL CONTAINING 24 MILLION BTU PER TON)

DEM REG (AQCR)	DEMAND REGION	SIP (1000 TONS)	NSPS (1000 TONS)	RNSPS (1000 TONS)	MET (1000 TONS)	EXP (1000 TONS)	SYN (1000 TONS)
1	JACKSON, AL	472	569	0	0	0	0
3	GADSDEN, AL	186	427	0	0	0	0
4	BIRMINGHAM, AL	7946	11294	1318	2930	0	0
5	MOBILE, AL	3421	611	3286	0	10462	0
7	DECATUR, AL	2855	316	3760	0	0	0
13	LAS VEGAS, NV	2215	2221	5506	0	0	0
14	FLAGSTAFF, AZ	12177	9616	9887	0	0	0
15	PHOENIX, AZ	0	2044	2364	0	0	0
16	LITTLE ROCK, AR	0	560	3359	0	0	0
17	FT. SMITH, AR	0	1681	0	0	0	0
18	MEMPHIS, TN	466	104	4121	0	0	0
19	MONROE, LA	0	535	1420	0	0	0
20	JONESBORO, AR	0	2195	786	0	0	0
22	SHREVEPORT, LA	3586	4486	14157	0	0	0
24	LOS ANGELES, CA	0	866	0	0	1185	0
28	SACRAMENTO, CA	0	74	0	0	0	0
29	SAN DIEGO, CA	0	47	0	0	0	0
30	SAN FRANCISCO, CA	0	275	0	0	0	0
31	FRESNO, CA	0	186	0	0	0	0
36	DENVER, CO	1510	415	944	0	0	0
37	GREELEY, CO	0	889	885	0	0	0
38	PUEBLO, CO	1409	561	0	0	0	0
40	STEAMBOAT SPRINGS,CO	1347	4030	0	0	0	0
41	NORWICH, CT	0	33	527	0	0	0
42	HARTFORD, CT	353	118	1336	0	0	0
43	NEW YORK, NY	2495	974	2454	1178	522	0
45	PHILADEPHIA, PA	2504	6729	0	0	5132	0
46	DOVER, DE	514	57	1033	0	0	0
47	WASHINGTON, DC	1998	225	0	0	0	0
49	JACKSONVILLE, FL	0	478	0	0	0	0
50	W. PALM BEACH, FL	0	4178	1389	0	0	0
52	TAMPA, FL	5799	10712	702	0	0	0
53	AUGUSTA, GA	449	87	0	0	0	0
54	MACON, GA	2763	4300	4775	0	0	0
55	CHATTANOOGA, TN	8990	241	4631	0	0	0
56	ATLANTA, GA	5886	4810	0	0	0	0
58	SAVANNAH, GA	1090	990	0	0	0	0
59	ALBANY, GA	426	58	0	0	0	0
62	SPOKANE, WA	0	235	886	0	0	0
64	BOISE, ID	0	406	1001	0	0	0
65	PEORIA, IL	4365	8508	0	0	0	0
66	DANVILLE, IL	317	52	0	0	0	0
67	CHICAGO, IL	6939	1862	0	2089	45	0
68	DUBUQUE, IA	232	20	2137	0	0	0
69	DAVENPORT, IA	822	3956	0	0	0	0
70	ST. LOUIS, MO	11754	281	0	116	0	0
71	LASALLE, IL	502	61	0	0	0	0
72	PADUCAH, KY	3952	145	0	0	0	0
73	ROCKFORD, IL	732	113	0	0	0	0
74	MARION, IL	625	31	922	0	0	0
75	SPRINGFIELD, IL	3005	56	0	0	0	0
77	EVANSVILLE, IN	11695	20233	2180	0	0	0
78	LOUISVILLE, KY	2340	540	1775	899	0	0
79	CINCINNATI, OH	3871	15594	838	0	0	0
80	INDIANAPOLIS, IN	1418	290	0	0	0	0
82	SOUTH BEND, IN	876	361	8048	8946	0	0
83	BLOOMINGTON, IN	1468	93	0	0	0	0
84	TERRA HAUTE, IN	2848	2905	0	0	0	0
85	OMAHA, NE	528	3223	0	0	0	0
86	SIOUX CITY, IA	1373	80	0	0	0	0
88	WATERLOO, IA	397	99	0	0	0	0
89	MASON CITY, IA	0	320	0	0	0	0
91	OTTUMWA, IA	0	56	2029	0	0	0
92	DES MOINES, IA	268	155	0	0	0	0
94	KANSAS CITY, MO	1318	3149	1894	0	0	0
95	SALINA, KS	482	9734	2044	0	0	0
98	WICHITA, KS	1260	179	0	0	0	0
102	LEXINGTON, KY	1306	214	0	0	0	0
103	HUNTINGTON, WV	13396	16272	3321	0	0	0
105	BOWLING GREEN, KY	522	88	0	0	0	0
106	NEW ORLEANS, LA	0	10141	6869	0	9705	0
107	LEWISTON, ME	0	507	334	0	0	0
109	BANGOR, ME	0	340	0	0	0	0
115	BALTIMORE, MD	872	4843	1575	2358	8900	0
116	BRANDYWINE, MD	1510	0	0	0	0	0
117	PITTSFIELD, MA	0	360	527	0	0	0
119	BOSTON, MA	890	54	0	0	0	0
120	PROVIDENCE, RI	1558	34	973	0	0	0
121	MANCHESTER, NH	669	47	0	0	0	0
122	GRAND RAPIDS, MI	3721	4722	4024	0	0	0
123	DETROIT, MI	3769	675	3608	2578	45	0
124	TOLEDO, OH	6800	178	0	0	0	0
125	KALAMAZOO, MI	953	243	0	0	0	0
126	MARQUETTE, MI	1868	1698	0	0	0	0
127	ST. CLOUD, MN	0	48	1341	0	0	0
128	LA CROSSE, WI	767	310	15430	0	0	0
129	DULUTH, MN	1077	2761	7481	0	0	0
131	MINNEAPOLIS, MN	1501	507	0	0	0	0
132	THIEF RIVER FALLS,MN	129	93	0	0	0	0
136	GREENSBORO, NC	4748	206	1543	0	0	0
137	JEFFERSON CITY, MO	835	39	0	0	0	0

Table 14. Coal demands at the AQCR level, 1998—Continued

(THOUSANDS OF TONS OF COAL CONTAINING 24 MILLION BTU PER TON)

DEM REG (AQCR)	DEMAND REGION	SIP (1000 TONS)	NSPS (1000 TONS)	RNSPS (1000 TONS)	MET (1000 TONS)	EXP (1000 TONS)	SYN (1000 TONS)
138	CAPE GIRARDEAU, MO	2177	55	0	0	0	0
139	SPRINGFIELD, MO	989	2413	0	0	0	0
143	MILES CITY, MT	1019	1039	413	0	0	0
144	MISSOULA, MT	0	404	0	0	0	0
146	GRAND ISLAND, NE	358	4087	9898	0	0	0
147	WINNEMUCA, NV	0	17	2698	0	0	0
148	RENO, NV	0	400	0	0	0	0
149	PLYMOUTH, NH	0	6	445	0	0	0
150	ATLANTIC CITY, NJ	443	23	4590	0	0	0
151	SCRANTON, PA	2138	571	2295	0	0	0
152	ALBUQUERQUE, NM	0	453	0	0	0	0
153	EL PASO, TX	0	209	0	0	0	0
156	SOCORRO NM	0	16	160	0	0	0
157	SANTE FE, NM	0	27	1420	0	0	0
158	SYRACUSE, NY	0	422	8379	0	27	0
159	BURLINGTON, VT	0	119	973	0	0	0
160	ROCHESTER, NY	1264	43	1823	0	0	0
161	ALBANY, NY	0	791	7291	0	0	0
162	BUFFALO, NY	706	81	1823	0	20	0
163	BINGHAMTON, NY	183	15	1823	0	0	0
164	OLEAN, NY	865	26	3645	0	0	0
165	HICKORY, NC	3214	118	6174	0	0	0
166	RALEIGH, NC	3053	7497	2933	0	0	0
167	CHARLOTTE, NC	1318	374	3087	0	0	0
170	WILMINGTON, NC	843	229	0	0	125	0
171	ASHEVILLE, NC	772	91	0	0	0	0
172	BISMARK, ND	1962	2030	259	0	0	0
173	DAYTON, OH	659	386	0	0	0	0
174	CLEVELAND, OH	5085	1364	0	5278	18849	0
175	MANSFIELD, OH	0	514	0	0	0	0
176	COLUMBUS, OH	263	580	0	0	0	0
177	LIMA, OH	0	444	0	0	0	0
178	DUBOIS, PA	2817	6460	0	0	0	0
179	PARKERSBURG, WV	2707	2269	4490	0	0	0
181	WHEELING, WV	10394	560	1661	0	0	0
183	ZANESVILLE, OH	2939	100	629	0	0	0
184	OKLAHOMA CITY, OK	0	121	7098	0	0	0
185	ENID, OK	0	4581	578	0	0	0
186	TULSA, OK	0	3156	4190	0	0	0
188	MCALESTER, OK	0	1244	0	0	0	0
190	BEND, OR	0	6	443	0	0	0
191	PENDLETON, OR	0	34	277	0	0	0
193	PORTLAND, OR	3061	66	2445	0	0	0
195	ALTOONA, PA	3688	194	0	0	0	0
196	HARRISBURG, PA	2418	202	0	0	0	0
197	PITTSBURGH, PA	13904	510	2065	8084	0	0
199	CHARLESTON, SC	1491	136	0	0	1251	0
200	COLUMBIA, SC	1499	199	0	0	0	0
202	SPARTANBURG, SC	446	253	0	0	0	0
204	GEORGETOWN, SC	1070	1844	540	0	0	0
206	PIERRE, SD	1079	136	944	0	0	0
207	KNOXVILLE, TN	4903	422	24392	0	0	0
208	NASHVILLE, TN	4808	236	18125	169	0	0
209	JACKSON, TN	0	305	25354	0	0	0
210	WICHITA, FALLS, TX	0	122	2839	0	0	0
211	AMARILLO, TX	0	2902	1864	0	0	0
212	AUSTIN, TX	2554	7234	8728	0	0	0
213	LAREDO, TX	0	0	0	0	53	0
214	CORPUS CHRISTI, TX	0	1903	1420	0	0	0
215	DALLAS, TX	0	939	12776	0	0	0
216	HOUSTON, TX	0	9725	8518	392	348	0
217	SAN ANTONIO, TX	0	3845	4968	0	0	0
220	SALT LAKE CITY, UT	1216	589	0	1342	0	0
222	LYNCHBURG, VA	0	1103	0	0	0	0
223	NORFOLK, VA	1074	383	0	893	49993	0
224	FREDERICKSBURG, VA	435	205	4131	0	0	0
225	RICHMOND, VA	1644	332	0	0	0	0
226	ROANOKE, VA	1678	566	0	0	0	0
229	SEATTLE, WA	0	119	558	0	0	0
230	YAKIMA, WA	0	33	1773	0	0	0
231	ELKINS, WV	2465	40	1661	0	0	0
232	GASSAWAY, WV	0	67	9964	0	0	0
233	MARTINSBURG, WV	144	743	1661	0	0	0
234	CHARLESTON, WV	5249	144	3321	1928	0	0
235	CLARKSBURG, WV	5027	89	4982	0	0	0
236	BECKLEY, WV	0	116	10369	0	0	0
237	GREEN BAY, WI	1016	332	16641	0	0	0
238	WAUSAU, WI	700	128	5103	0	0	0
239	MILWAUKEE, WI	1649	384	7962	0	0	0
240	MADISON, WI	1081	58	14598	0	0	0
241	CASPER, WY	1424	18	2234	0	0	0
242	CHEYENNE, WY	0	2165	3274	0	0	0
243	ROCK SPRINGS, WY	5181	1728	9914	0	0	0
		298207	278999	432039	39180	106662	0

Table 15. Coal demands at the AQCR level, 2025

(THOUSANDS OF TONS OF COAL CONTAINING 24 MILLION BTU PER TON)

DEM REG (AQCR)	DEMAND REGION	SIP (1000 TONS)	NSPS (1000 TONS)	RNSPS (1000 TONS)	MET (1000 TONS)	EXP (1000 TONS)	SYN (1000 TONS)
1	JACKSON, AL	0	1469	0	0	0	0
3	GADSDEN, AL	0	996	0	0	0	0
4	BIRMINGHAM, AL	329	5940	3926	4268	0	0
5	MOBILE, AL	270	2440	9789	0	16838	0
7	DECATUR, AL	0	1333	13796	0	0	0
13	LAS VEGAS, NV	128	1250	5864	0	0	0
14	FLAGSTAFF, AZ	1301	4088	22241	0	0	0
15	PHOENIX, AZ	0	4611	6255	0	0	0
16	LITTLE ROCK, AR	0	2125	10795	0	0	0
17	FT. SMITH, AR	0	949	0	0	0	0
18	MEMPHIS, TN	0	461	12846	0	0	0
19	MONROE, LA	0	2155	4798	0	0	0
20	JONESBORO, AR	0	1122	2099	0	0	0
22	SHREVEPORT, LA	1328	3565	43350	0	0	0
24	LOS ANGELES, CA	0	1705	12509	0	1907	0
28	SACRAMENTO, CA	0	149	9382	0	0	0
29	SAN DIEGO, CA	0	95	3127	0	0	0
30	SAN FRANCISCO, CA	0	551	3127	0	0	0
31	FRESNO, CA	0	269	18763	0	0	0
36	DENVER, CO	0	1641	2347	0	0	0
37	GREELEY, CO	0	477	2200	0	0	0
38	PUEBLO, CO	112	1025	0	0	0	0
40	STEAMBOAT SPRINGS,CO	170	1222	0	0	0	0
41	NORWICH, CT	0	93	2097	0	0	0
42	HARTFORD, CT	0	688	6292	0	0	0
43	NEW YORK, NY	0	7017	6649	1716	841	0
45	PHILADEPHIA, PA	0	5312	0	0	8260	0
46	DOVER, DE	32	244	2791	0	0	0
47	WASHINGTON, DC	0	978	0	0	0	0
49	JACKSONVILLE, FL	0	937	0	0	0	0
50	W. PALM BEACH, FL	0	2163	4139	0	0	0
52	TAMPA, FL	327	3947	2092	0	0	0
53	AUGUSTA, GA	0	390	0	0	0	0
54	MACON, GA	0	1682	14227	0	0	0
55	CHATTANOOGA, TN	687	758	13795	0	0	0
56	ATLANTA, GA	538	2088	0	0	0	0
58	SAVANNAH, GA	125	531	0	0	0	0
59	ALBANY, GA	0	259	0	0	0	0
62	SPOKANE, WA	0	525	3990	0	0	0
64	BOISE, ID	0	776	3990	0	0	0
65	PEORIA, IL	335	2459	0	0	0	0
66	DANVILLE, IL	0	243	0	0	0	0
67	CHICAGO, IL	621	7954	0	3043	73	0
68	DUBUQUE, IA	0	83	7141	0	0	0
69	DAVENPORT, IA	0	2475	0	0	0	0
70	ST. LOUIS, MO	867	848	0	169	0	0
71	LASALLE, IL	0	282	0	0	0	0
72	PADUCAH, KY	93	570	0	0	0	0
73	ROCKFORD, IL	0	529	0	0	0	0
74	MARION, IL	0	143	2455	0	0	0
75	SPRINGFIELD, IL	45	242	0	0	0	0
77	EVANSVILLE, IN	1089	6500	5802	0	0	0
78	LOUISVILLE, KY	219	2092	5288	1310	0	0
79	CINCINNATI, OH	743	6532	2231	0	0	0
80	INDIANAPOLIS, IN	121	1234	0	0	0	0
82	SOUTH BEND, IN	72	1106	21423	13030	0	0
83	BLOOMINGTON, IN	0	429	0	0	0	0
84	TERRA HAUTE, IN	96	1277	0	0	0	0
85	OMAHA, NE	0	2026	0	0	0	0
86	SIOUX CITY, IA	111	166	0	0	0	0
88	WATERLOO, IA	0	407	0	0	0	0
89	MASON CITY, IA	0	460	0	0	0	0
91	OTTUMWA, IA	0	101	7711	0	0	0
92	DES MOINES, IA	0	592	0	0	0	0
94	KANSAS CITY, MO	49	1994	7197	0	0	0
95	SALINA, KS	14	4776	7768	0	0	0
98	WICHITA, KS	49	475	0	0	0	0
102	LEXINGTON, KY	71	677	0	0	0	0
103	HUNTINGTON, WV	794	5221	11165	0	0	0
105	BOWLING GREEN, KY	0	369	0	0	0	0
106	NEW ORLEANS, LA	0	11140	22371	0	15619	0
107	LEWISTON, ME	0	1496	1573	0	0	0
109	BANGOR, ME	0	1001	0	0	0	0
115	BALTIMORE, MD	0	2513	4257	3435	14324	0
116	BRANDYWINE, MD	40	0	0	0	0	0
117	PITTSFIELD, MA	0	115	2097	0	0	0
119	BOSTON, MA	44	360	0	0	0	0
120	PROVIDENCE, RI	28	215	4195	0	0	0
121	MANCHESTER, NH	0	322	0	0	0	0
122	GRAND RAPIDS, MI	665	2470	10711	0	0	0
123	DETROIT, MI	0	3142	9604	3756	73	0
124	TOLEDO, OH	211	775	0	0	0	0
125	KALAMAZOO, MI	99	1044	0	0	0	0
126	MARQUETTE, MI	479	1015	0	0	0	0
127	ST. CLOUD, MN	0	91	3570	0	0	0
128	LA CROSSE, WI	0	517	51547	0	0	0
129	DULUTH, MN	68	1236	24992	0	0	0
131	MINNEAPOLIS, MN	0	2165	0	0	0	0
132	THIEF RIVER FALLS,MN	0	81	0	0	0	0
136	GREENSBORO, NC	532	606	4599	0	0	0
137	JEFFERSON CITY, MO	0	152	0	0	0	0

Table I5. Coal demands at the AQCR level, 2025—continued

(THOUSANDS OF TONS OF COAL CONTAINING 24 MILLION BTU PER TON)

DEM REG (AQCR)	DEMAND REGION	SIP (1000 TONS)	NSPS (1000 TONS)	RNSPS (1000 TONS)	MET (1000 TONS)	EXP (1000 TONS)	SYN (1000 TONS)
138	CAPE GIRARDEAU, MO	190	155	0	0	0	0
139	SPRINGFIELD, MO	23	1271	0	0	0	0
143	MILES CITY, MT	71	321	1027	0	0	0
144	MISSOULA, MT	0	704	0	0	0	0
146	GRAND ISLAND, NE	0	2590	40839	0	0	0
147	WINNEMUCA, NV	0	38	0	0	0	0
148	RENO, NV	0	885	0	0	0	0
149	PLYMOUTH, NH	0	19	2097	0	0	0
150	ATLANTIC CITY, NJ	14	151	10404	0	0	0
151	SCRANTON, PA	894	1837	5202	0	0	0
152	ALBUQUERQUE, NM	0	1798	0	0	0	0
153	EL PASO, TX	0	845	0	0	0	0
156	SOCORRO NM	0	62	540	0	0	0
157	SANTE FE, NM	0	109	4798	0	0	0
158	SYRACUSE, NY	0	416	21134	0	43	0
159	BURLINGTON, VT	0	386	4195	0	0	0
160	ROCHESTER, NY	0	321	5202	0	0	0
161	ALBANY, NY	0	598	20808	0	0	0
162	BUFFALO, NY	0	605	5202	0	32	0
163	BINGHAMTON, NY	0	105	5202	0	0	0
164	OLEAN, NY	0	191	10405	0	0	0
165	HICKORY, NC	81	445	18395	0	0	0
166	RALEIGH, NC	67	2825	8737	0	0	0
167	CHARLOTTE, NC	0	1585	9197	0	0	0
170	WILMINGTON, NC	47	617	0	0	201	0
171	ASHEVILLE, NC	37	342	0	0	0	0
172	BISMARK, ND	99	593	645	0	0	0
173	DAYTON, OH	0	1839	0	0	0	0
174	CLEVELAND, OH	430	4816	0	7688	30335	0
175	MANSFIELD, OH	0	1073	0	0	0	0
176	COLUMBUS, OH	0	1142	0	0	0	0
177	LIMA, OH	0	858	0	0	0	0
178	DUBOIS, PA	0	4196	0	0	0	0
179	PARKERSBURG, WV	0	1742	12083	0	0	0
181	WHEELING, WV	1021	1703	5582	0	0	0
183	ZANESVILLE, OH	279	349	1674	0	0	0
184	OKLAHOMA CITY, OK	0	476	23990	0	0	0
185	ENID, OK	0	1423	1544	0	0	0
186	TULSA, OK	0	1617	12984	0	0	0
188	MCALESTER, OK	0	597	0	0	0	0
190	BEND, OR	0	15	1995	0	0	0
191	PENDLETON, OR	0	11	1247	0	0	0
193	PORTLAND, OR	112	296	9974	0	0	0
195	ALTOONA, PA	156	798	0	0	0	0
196	HARRISBURG, PA	0	912	0	0	0	0
197	PITTSBURGH, PA	418	2093	5582	11775	0	0
199	CHARLESTON, SC	83	558	0	0	2014	0
200	COLUMBIA, SC	60	548	0	0	0	0
202	SPARTANBURG, SC	0	1131	0	0	0	0
204	GEORGETOWN, SC	206	1530	1610	0	0	0
206	PIERRE, SD	115	251	2347	0	0	0
207	KNOXVILLE, TN	0	1824	87374	0	0	0
208	NASHVILLE, TN	169	925	64378	246	0	0
209	JACKSON, TN	0	570	91973	0	0	0
210	WICHITA, FALLS, TX	0	494	9596	0	0	0
211	AMARILLO, TX	0	1223	4978	0	0	0
212	AUSTIN, TX	174	3295	25324	0	0	0
213	LAREDO, TX	0	0	0	0	86	0
214	CORPUS CHRISTI, TX	0	1616	4798	0	0	0
215	DALLAS, TX	0	3819	43182	0	0	0
216	HOUSTON, TX	0	7333	28788	571	559	0
217	SAN ANTONIO, TX	0	2073	16793	0	0	0
220	SALT LAKE CITY, UT	0	2388	0	1954	0	0
222	LYNCHBURG, VA	0	1870	0	0	0	0
223	NORFOLK, VA	167	1579	0	1301	80459	0
224	FREDERICKSBURG, VA	0	929	11165	0	0	0
225	RICHMOND, VA	0	1502	0	0	0	0
226	ROANOKE, VA	0	2560	0	0	0	0
229	SEATTLE, WA	0	276	1995	0	0	0
230	YAKIMA, WA	0	66	7979	0	0	0
231	ELKINS, WV	42	149	5582	0	0	0
232	GASSAWAY, WV	0	122	33495	0	0	0
233	MARTINSBURG, WV	0	1242	5582	0	0	0
234	CHARLESTON, WV	183	541	11165	2808	0	0
235	CLARKSBURG, WV	118	333	16747	0	0	0
236	BECKLEY, WV	0	169	33495	0	0	0
237	GREEN BAY, WI	0	1576	55596	0	0	0
238	WAUSAU, WI	0	608	17049	0	0	0
239	MILWAUKEE, WI	0	1823	26599	0	0	0
240	MADISON, WI	165	204	48769	0	0	0
241	CASPER, WY	32	67	7041	0	0	0
242	CHEYENNE, WY	0	1640	10121	0	0	0
243	ROCK SPRINGS, WY	367	652	31245	0	0	0
		18722	244000	1420423	57070	171664	0

Table 16. Coal demands at the AQCR level, 2053

(THOUSANDS OF TONS OF COAL CONTAINING 24 MILLION BTU PER TON)

DEM REG (AQCR)	DEMAND REGION	SIP (1000 TONS)	NSPS (1000 TONS)	RNSPS (1000 TONS)	MET (1000 TONS)	EXP (1000 TONS)	SYN (1000 TONS)
1	JACKSON, AL	0	1479	0	0	0	0
3	GADSDEN, AL	0	1003	0	0	0	0
4	BIRMINGHAM, AL	0	4536	5056	4487	0	0
5	MOBILE, AL	0	2674	12607	0	17656	0
7	DECATUR, AL	0	1342	17766	0	0	0
13	LAS VEGAS, NV	0	935	7944	0	0	0
14	FLAGSTAFF, AZ	0	2913	29232	0	0	26382
15	PHOENIX, AZ	0	4667	8474	0	0	0
16	LITTLE ROCK, AR	0	2187	13873	0	0	0
17	FT. SMITH, AR	0	746	0	0	0	0
18	MEMPHIS, TN	0	465	16530	0	0	0
19	MONROE, LA	0	2220	6166	0	0	0
20	JONESBORO, AR	0	850	2697	0	0	0
22	SHREVEPORT, LA	0	4232	55709	0	0	49946
24	LOS ANGELES, CA	0	1725	16948	0	2000	0
28	SACRAMENTO, CA	0	150	12711	0	0	0
29	SAN DIEGO, CA	0	96	4237	0	0	0
30	SAN FRANCISCO, CA	0	558	4237	0	0	0
31	FRESNO, CA	0	272	25422	0	0	0
36	DENVER, CO	0	1616	3026	0	0	0
37	GREELEY, CO	0	373	2836	0	0	0
38	PUEBLO, CO	0	1058	0	0	0	0
40	STEAMBOAT SPRINGS,CO	0	679	0	0	0	0
41	NORWICH, CT	0	94	2715	0	0	0
42	HARTFORD, CT	0	694	8144	0	0	0
43	NEW YORK, NY	0	6864	8583	1804	882	0
45	PHILADEPHIA, PA	0	4409	0	0	8661	0
46	DOVER, DE	0	259	3572	0	0	0
47	WASHINGTON, DC	0	945	0	0	0	0
49	JACKSONVILLE, FL	0	943	0	0	0	0
50	W. PALM BEACH, FL	0	1606	5330	0	0	0
52	TAMPA, FL	0	2456	2695	0	0	0
53	AUGUSTA, GA	0	393	0	0	0	0
54	MACON, GA	0	1039	18321	0	0	0
55	CHATTANOOGA, TN	0	1067	17766	0	0	0
56	ATLANTA, GA	0	1553	0	0	0	0
58	SAVANNAH, GA	0	484	0	0	0	0
59	ALBANY, GA	0	261	0	0	0	0
62	SPOKANE, WA	0	533	5104	0	0	0
64	BOISE, ID	0	787	5104	0	0	0
65	PEORIA, IL	0	1557	0	0	0	0
66	DANVILLE, IL	0	242	0	0	0	0
67	CHICAGO, IL	0	8578	0	3199	76	0
68	DUBUQUE, IA	0	84	9121	0	0	26382
69	DAVENPORT, IA	0	1613	0	0	0	47172
70	ST. LOUIS, MO	0	1180	0	178	0	0
71	LASALLE, IL	0	280	0	0	0	0
72	PADUCAH, KY	0	623	0	0	0	0
73	ROCKFORD, IL	0	527	0	0	0	0
74	MARION, IL	0	143	3135	0	0	0
75	SPRINGFIELD, IL	0	261	0	0	0	26381
77	EVANSVILLE, IN	0	4535	7410	0	0	0
78	LOUISVILLE, KY	0	2292	6811	1377	0	0
79	CINCINNATI, OH	0	4776	2850	0	0	0
80	INDIANAPOLIS, IN	0	1331	0	0	0	0
82	SOUTH BEND, IN	0	1161	27362	13698	0	0
83	BLOOMINGTON, IN	0	427	0	0	0	0
84	TERRA HAUTE, IN	0	989	0	0	0	0
85	OMAHA, NE	0	1329	0	0	0	0
86	SIOUX CITY, IA	0	189	0	0	0	0
88	WATERLOO, IA	0	411	0	0	0	0
89	MASON CITY, IA	0	464	0	0	0	0
91	OTTUMWA, IA	0	102	10456	0	0	0
92	DES MOINES, IA	0	597	0	0	0	0
94	KANSAS CITY, MO	0	1364	9758	0	0	0
95	SALINA, KS	0	2577	10534	0	0	0
98	WICHITA, KS	0	502	0	0	0	0
102	LEXINGTON, KY	0	730	0	0	0	0
103	HUNTINGTON, WV	0	3494	14288	0	0	26384
105	BOWLING GREEN, KY	0	372	0	0	0	49944
106	NEW ORLEANS, LA	0	10295	28750	0	16377	0
107	LEWISTON, ME	0	1509	2036	0	0	0
109	BANGOR, ME	0	1010	0	0	0	0
115	BALTIMORE, MD	0	1877	5447	3611	15019	0
117	PITTSFIELD, MA	0	116	2715	0	0	0
119	BOSTON, MA	0	395	0	0	0	0
120	PROVIDENCE, RI	0	236	5429	0	0	0
121	MANCHESTER, NH	0	325	0	0	0	0
122	GRAND RAPIDS, MI	0	2435	13681	0	0	0
123	DETROIT, MI	0	3128	12267	3948	76	0
124	TOLEDO, OH	0	836	0	0	0	0
125	KALAMAZOO, MI	0	1126	0	0	0	0
126	MARQUETTE, MI	0	855	0	0	0	0
127	ST. CLOUD, MN	0	91	4560	0	0	0
128	LA CROSSE, WI	0	490	65840	0	0	0
129	DULUTH, MN	0	966	31922	0	0	0
131	MINNEAPOLIS, MN	0	2156	0	0	0	0
132	THIEF RIVER FALLS,MN	0	81	0	0	0	0
136	GREENSBORO, NC	0	854	5922	0	0	0
137	JEFFERSON CITY, MO	0	154	0	0	0	0
138	CAPE GIRARDEAU, MO	0	219	0	0	0	0

Table 16. Coal demands at the AQCR level, 2053—Continued

(THOUSANDS OF TONS OF COAL CONTAINING 24 MILLION BTU PER TON)

DEM REG (AQCR)	DEMAND REGION	SIP (1000 TONS)	NSPS (1000 TONS)	RNSPS (1000 TONS)	MET (1000 TONS)	EXP (1000 TONS)	SYN (1000 TONS)
139	SPRINGFIELD, MO	0	742	0	0	0	0
143	MILES CITY, MT	0	182	1324	0	0	0
144	MISSOULA, MT	0	693	0	0	0	0
146	GRAND ISLAND, NE	0	1706	55377	0	0	51214
147	WINNEMUCA, NV	0	38	0	0	0	0
148	RENO, NV	0	896	0	0	0	0
149	PLYMOUTH, NH	0	19	2715	0	0	0
150	ATLANTIC CITY, NJ	0	158	13413	0	0	0
151	SCRANTON, PA	0	2538	6707	0	0	0
152	ALBUQUERQUE, NM	0	1852	0	0	0	0
153	EL PASO, TX	0	871	0	0	0	0
154	LAS VEGAS, NM	0	0	0	0	0	26382
156	SOCORRO NM	0	64	694	0	0	0
157	SANTE FE, NM	0	112	6166	0	0	0
158	SYRACUSE, NY	0	407	27246	0	45	0
159	BURLINGTON, VT	0	377	5429	0	0	0
160	ROCHESTER, NY	0	313	6707	0	0	0
161	ALBANY, NY	0	584	26827	0	0	0
162	BUFFALO, NY	0	591	6707	0	33	0
163	BINGHAMTON, NY	0	103	6707	0	0	0
164	OLEAN, NY	0	187	13413	0	0	0
165	HICKORY, NC	0	488	23689	0	0	0
166	RALEIGH, NC	0	1736	11252	0	0	0
167	CHARLOTTE, NC	0	1596	11844	0	0	0
170	WILMINGTON, NC	0	657	0	0	211	0
171	ASHEVILLE, NC	0	375	0	0	0	0
172	BISMARK, ND	0	318	832	0	0	49942
173	DAYTON, OH	0	1831	0	0	0	0
174	CLEVELAND, OH	0	5159	0	8082	31807	0
175	MANSFIELD, OH	0	1069	0	0	0	0
176	COLUMBUS, OH	0	1137	0	0	0	0
177	LIMA, OH	0	855	0	0	0	0
178	DUBOIS, PA	0	3382	0	0	0	0
179	PARKERSBURG, WV	0	1468	15455	0	0	26382
181	WHEELING, WV	0	2346	7143	0	0	0
183	ZANESVILLE, OH	0	474	2138	0	0	0
184	OKLAHOMA CITY, OK	0	491	30828	0	0	0
185	ENID, OK	0	790	1985	0	0	0
186	TULSA, OK	0	1226	16687	0	0	0
188	MCALESTER, OK	0	440	0	0	0	0
190	BEND, OR	0	16	2552	0	0	0
191	PENDLETON, OR	0	11	1595	0	0	0
193	PORTLAND, OR	0	324	12759	0	0	0
195	ALTOONA, PA	0	847	0	0	0	0
196	HARRISBURG, PA	0	881	0	0	0	0
197	PITTSBURGH, PA	0	2222	7143	12378	0	0
199	CHARLESTON, SC	0	612	0	0	2111	0
200	COLUMBIA, SC	0	579	0	0	0	0
202	SPARTANBURG, SC	0	1139	0	0	0	0
204	GEORGETOWN, SC	0	1470	2073	0	0	0
206	PIERRE, SD	0	262	3025	0	0	0
207	KNOXVILLE, TN	0	1821	112523	0	0	0
208	NASHVILLE, TN	0	1014	82909	258	0	0
209	JACKSON, TN	0	574	118448	0	0	0
210	WICHITA, FALLS, TX	0	509	12332	0	0	0
211	AMARILLO, TX	0	844	6397	0	0	0
212	AUSTIN, TX	0	2464	32545	0	0	0
213	LAREDO, TX	0	0	0	0	90	0
214	CORPUS CHRISTI, TX	0	1424	6166	0	0	0
215	DALLAS, TX	0	3934	55494	0	0	0
216	HOUSTON, TX	0	6320	36997	600	587	0
217	SAN ANTONIO, TX	0	1603	21581	0	0	0
220	SALT LAKE CITY, UT	0	2351	0	2055	0	0
222	LYNCHBURG, VA	0	1807	0	0	0	0
223	NORFOLK, VA	0	1676	0	1368	84367	0
224	FREDERICKSBURG, VA	0	898	14287	0	0	0
225	RICHMOND, VA	0	1451	0	0	0	0
226	ROANOKE, VA	0	2474	0	0	0	0
229	SEATTLE, WA	0	280	2552	0	0	0
230	YAKIMA, WA	0	67	10207	0	0	0
231	ELKINS, WV	0	159	7144	0	0	0
232	GASSAWAY, WV	0	117	42861	0	0	0
233	MARTINSBURG, WV	0	1201	7143	0	0	0
234	CHARLESTON, WV	0	574	14288	2952	0	0
235	CLARKSBURG, WV	0	354	21431	0	0	0
236	BECKLEY, WV	0	163	42863	0	0	0
237	GREEN BAY, WI	0	1570	71013	0	0	0
238	WAUSAU, WI	0	605	21776	0	0	0
239	MILWAUKEE, WI	0	1815	33974	0	0	0
240	MADISON, WI	0	276	62291	0	0	0
241	CASPER, WY	0	73	9076	0	0	0
242	CHEYENNE, WY	0	1422	13048	0	0	0
243	ROCK SPRINGS, WY	0	495	40278	0	0	49944
		0	220016	1833155	59995	179998	456455

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