

VERIFICATION

Personally appeared the undersigned Shade May, who under oath states that the information contained in the foregoing Verified Statement is true and correct.

lang Shade May

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Sworn to and subscribed before me this 22^{-4} day of March, 1996.

Patring Peterson)

Notary Public

My Commission Expires: May 1, 1998

VERIFIED STATEMENT OF LAWRENCE J. WHITE

A. Introduction

My name is Lawrence J. White. I am the Arthur E. Imperatore Professor of Economics at the Stern School of Business, New York University. I have been at the Stern School since 1976; prior to that I was an Assistant Professor of Economics at Princeton University from 1970 to 1976. My research and teaching areas of specialization include microeconomics, industrial organization, antitrust, and regulation, including financial regulation. I have written and edited books on these topics, and I have written articles in scholarly economics and law journals in these fields. A copy of my vita is attached.

I have served in policy positions in the U.S. Government three times: From September 1978 through July 1979, I was a Senior Staff Economist on the Council of Economic Advisers; from January 1982 through August 1983, I was the Director of the Economic Policy Office ("Chicf Economist") of the Antitrust Division of the U.S. Department of Justice; and from November 1986 through August 1989, I was a Board Member of the Federal Home Loan Bank Board.

B. Summary

A competitive analysis of merger proposals should focus primarily on the potential threats to competition that would accompany a merger. Unless the evidence to support claims of postmerger efficiencies is so substantial as to be overwhelming, these claims ought to be given little or no weight as a counterbalance to the negative consequences -- competitive harms -- that would follow from a merger. It is my professional judgment that the proposed merger of the Union Pacific ("UP") and the Southern Pacific ("SP") would be anti-competitive and should not be allowed to proceed. It would reduce competition substantially in a large number of rail transportation markets, causing higher prices for transportation to shippers and their customers, and/or decreased quality of service, and/or slower innovation. The efficiency gains promised by the advocates of the merger are highly speculative; indeed, the difficulties of melding two different companies and of managing a larger organization could easily cause the efficiency of the merged entity to decrease rather than increase.

If the merger is permitted to proceed, a necessary remedy to reduce the harms to competition must be to require that the merging parties first <u>sell</u> (divest) all duplicative (parallel) track (and the necessary complementary facilities) on the routes where the merger would otherwise cause the vigor of competition to decrease. The divestitures should be to financially capable competitors who would be most likely to maintain the vigor of competition on the routes. The granting of trackage rights to rivals is wholly inadequate and unacceptable as a substitute for outright divestiture, since trackage rights create a "landlord-tenant" relationship that could impede effective competition in a number of different ways.

The remainder of this affidavit will provide the basis for these statements.

C. The Basic Benefits of Competition¹

When there are a large number of sellers in a relevant market² and collusion is absent, vigorous price and non-price competition will be present. Buyers of the goods or services sold in that market will benefit from the lowest possible prices that are consistent with firms' being able to cover their costs and from the array of qualities and varieties that the various firms believe will best satisfy customers' demands. Each firm in this competitive marketplace acts as if it has no effect on the overall market outcome (which is in fact correct) and thus ignores the consequences of its actions on the behavior of the other firms in the market. Each firm simply pursues its own best strategy; the collective consequences for buyers in the marketplace are the lowest prices (relative to costs) and a wide variety.

At the other extreme, a single firm (monopoly) in an otherwise similar market in which entry by other firms is difficult will find that its best (profit-maximizing) strategy is to restrict output (as compared with the competitive outcome) and thereby be able to maintain prices at higher levels than those of the competitive outcome, earning monopoly profits (or "rents"). The monopolist will generally also find worthwhile a limitation on the variety of goods and services that it offers to the market (since it will often be concerned about the "cannibalization" effects that a new variety would have on the sales of its existing array of offerings). Buyers who face a monopoly in a market thus suffer from higher prices as well as restricted variety as compared to the competitive outcome.

¹ The following description is a simplification of the standard microeconomics presentation of the positive and normative constructs underlying the competition and monopoly models. A more complete presentation can be found in any microeconomics text; see for example, Robert S. Pindyk and Daniel L. Rubinfeld, <u>Microeconomics</u>, 3rd edn., (1994).

² The appropriate way to define a relevant market for the purposes of analyzing a merger can be found in the USDOJ-FTC "Horizontal Merger Guidelines" (1992).

In between these two limiting cases of perfect competition and complete monopoly are the instances where there are only "a few" sellers in the market (and entry is difficult). We now turn our attention to these in-between instances.

D. Market Outcomes Where Sellers Are Few

Microeconomics (oligopoly) theory strongly indicates that, in markets where sellers are few and entry is difficult, this fewness will affect outcomes adversely (as compared with the competitive outcome -- i.e., prices will be higher and the collective output in the market will be lower) and that a reduction in the number of sellers in these "fewness" markets will create outcomes that are even more adverse (i.e., causing outcomes to be closer to the monopoly outcome and farther away from the competitive outcome).³ There are a number of approaches in microeconomics theory that all lead to this conclusion. We will review them in turn.⁴

<u>1. A general approach.</u>⁵ The most general approach to oligopoly markets posits that, with the presence of only a few firms as sellers, each seller cannot ignore the presence of the others and recognizes that its actions are likely to lead to reactions by the others and that the others are similarly aware of this interdependence. (This mutual awareness is sometimes

³ This conclusion assumes that the reduction in the number of sellers -- e.g., as would be caused by a merger -- does not concomitantly create any efficiencies. If efficiencies do arise, they should be balanced against the adverse consequences described in the text below. If the adverse consequences are greater than the efficiencies, then this conclusion is still valid.

⁴ Again, this review will be simplified. More expansive discussions can be found in any industrial organization text; see, for example, Dennis W. Carlton & Jeffrey M. Perloff, <u>Modern</u> Industrial Organization, 2nd edn. (1994).

⁵ This approach can be found in George J. Stigler, "A Theory of Oligopoly," <u>Journal of</u> <u>Political Economy</u> (1964). It is the basic theory that informs the USDOJ-FTC "Horizontal Merger Guidelines." See John E. Kwoka, Jr., & Lawrence J. White, eds., <u>The Antitrust</u> <u>Revolution: The Role of Economics</u>, 2nd edn. (1994).

described as "conjectural interdependence.") Each seller thereby faces a tension: Each recognizes that collectively the group of sellers can achieve the highest level of profits by implicitly or explicitly coordinating their actions (e.g., in maintaining high prices and reduced output) and thereby approximating the monopoly outcome. But each seller can gain individually by "cheating" (e.g., by cutting prices and stealing customers from its rivals). However, each seller also realizes that the other sellers can "retaliate" in response to perceived "cheating," leading to a general decrease in prices that causes all the sellers to be worse off than if none had "cheated."⁶

Under these conditions, a statement of a specific market outcome is not possible. But the factors that influence the outcome (and the directions of their effects) can be specified. The important factors are the number of sellers, their market shares, the similarities or dissimilarities in their cost structures and in their perspectives on market demand, the conditions of entry, the ease or difficulty with which sellers can expand their outputs, the nature and complexity of the product or service, the structure of the buyers' side of the market, and the opportunities available to the sellers for explicit or implicit communication (including contractual arrangements of various kinds and their mutual sales presences in other markets).

If we assume that entry is difficult (so that the handful of incumbent sellers are the only relevant entities) and we hold the other conditions constant, then the number of sellers (and their market shares) will generally be an important determinant of the market outcome. The smaller is the number of sellers, the easier it will be for them to monitor and reassure each other that

⁶ A formalization of these conflicting incentives for cooperative and opportunistic behavior is provided by the "prisoner's dilemma" construct of game theory.

they are not "cheating" on any understanding and thus the easier it will be for them to maintain a non-competitive outcome.

Accordingly, a reduction in the number of sellers in a market that has only a few incumbents is likely to have an adverse effect (from the perspective of buyers) on the marketplace outcome, since the reduced number of sellers will likely find implicit or explicit coordination to be easier. This reduction becomes yet more important when the number of original sellers is fewer. Thus, a reduction in the number of sellers in a market from three to two is likely to have more of an adverse effect on the market outcomes than a reduction from, say, eight to seven.⁷ And, of course, a reduction from two sellers to one seller yields the monopoly outcome.

Further, if the sellers have extensive contacts with each other -- perhaps because they provide inputs to each other or because they face each other in multiple markets -- the likelihood of a coordinated outcome in any individual market increases. Their business dealings in providing inputs to each other can be a vehicle for sharing information and reassuring each other of their cooperative intentions and also a means of threatening and punishing a "cheater" (by withdrawing the supply of inputs). Their multiple market contacts increase their opportunities for monitoring and reassuring each other and also provide them with additional means of retaliation and punishment against a "cheater" and thus will reduce the incentive for "cheating"

⁷ Although a significant adverse effect could well be possible even in the latter case, if the reduction in number occurs through the merger of the largest sellers in the market and their resulting combined share is such as to give them market leadership or otherwise encourage a greater amount of coordination among the remaining sellers.

in any individual market.⁸ And, again, the fewer are the number of sellers, the more powerful are these forces toward a less competitive outcome.

The other factors mentioned above can also influence the market outcome. For example, if the product sold is subject to multiple quality differentiations, the monitoring and reassurances among sellers become more difficult; but also, when products are differentiated, the possibilities of anti-competitive unilateral behavior (discussed below) are enhanced. Still, except when entry is easy, fewness among sellers will generally affect the market outcome adversely -- with the concomitant principle that a reduction in the number of sellers will have an adverse effect.

2. The dominant seller and unilateral action.⁹ Suppose that a single seller has a "dominant" position in the market -- for illustrative purposes, a 35-40% market share or larger¹⁰ -- and that the remaining sellers are substantially smaller and can expand their outputs only with difficulty -- because of cost or capacity limitations (caused by plant-and-equipment limitations or by managerial limitations) or because of customers' brand-name and/or quality-variety preferences. In these circumstances, the dominant seller's best strategy is specifically to take into account the other (smaller) sellers' likely (limited) responses to any actions that it might take, which then allows it "unilaterally" to determine its highest-profit outcome. In essence (and in contrast to the <u>mutual</u> interdependence described above), the dominant seller "backs out" the other sellers' likely responses to its actions and thereby can find its best (highest

⁸ Equivalently, multiple market contacts are like multiple plays of the "prisoner's dilemma" game with the same "opponent," providing a greater likelihood of a cooperative outcome.

⁹ This construct too is one of the foundations of the USDOJ-FTC "Horizontal Merger Guidelines."

¹⁰ The USDOJ-FTC "Horizontal Merger Guidelines" use a standard of 35% for initial concerns about the presence of a dominant seller.

profit) price-quantity combination. The marketplace outcome will be one in which quantity is lower and price is higher than would occur with an otherwise comparable competitive market. Also, the dominant seller is likely to be faced by the same "cannibalization" concerns that affect the monopolist and thus is likely to restrict variety.

This dominant firm scenario can arise as a consequence of a merger between sellers that already have sizable market shares, which would thus heighten and worsen any oligopolistic coordination effects that had already been occurring. Again, a reduction in the number of sellers is likely to have an adverse effect on the marketplace outcome.

3. Auction markets. In some circumstances the relevant market is a single buyer (e.g., the federal government) that issues a set of specifications for a good or service, solicits bids from potential sellers, and chooses the seller that offers the lowest price. In essence, the single buyer has created an auction among the sellers.

In this type of market, the goal of a seller is to win the auction at the highest possible price. When there are only a small number of sellers, each faces a tension: If it bids too high, another seller may underbid and win the auction; but if it bids too low, it will win the auction but at an unnecessarily low price that needlessly sacrifices potential profits (i.e., it needlessly "leaves money on the table"). If a seller is agnostic about the potential bids of the other sellers (e.g., because it is uncertain about their cost levels), then it is easy to show that the optimal bid of the seller (i.e., the bid that maximizes the expected gain of the seller, which is the product of its probability of winning and the profit margin achieved on a winning bid) is <u>inversely</u> dependent on the number of other bidders; i.e., as the number of sellers who are in the auction decreases, the optimal bid for any seller that follows this strategy increases.¹¹

Accordingly, from the perspective of the buyer, the outcome of the auction is worse (i.e., the expected winning price is higher) when the number of bidders (sellers) is fewer. Again, a decrease in the number of sellers (bidders) in the market will have an adverse effect on the marketplace outcome.

4. Quantity as the strategic variable (Cournot). As a way of simplifying and making more mathematically tractable the general model discussed above, economists (starting with Augustin Cournot) have often employed models in which each seller chooses its quantity and assumes that all sellers' prices will adjust accordingly. The equilibrium solution to this formulation yields a marketplace outcome in which the price is higher and the collective quantity

¹¹ See R. Preston McAfee and John McMillan, "Auctions and Bidding," Journal of Economic Literature (1987). To provide an intuitive grasp as to why a (selling) bidder's best strategy is to bid lower when there are more bidders, let us imagine an auction in which the range of possible bids (e.g., the price at which a rail carrier offers to provide freight transportation) has been scaled to a range of 0 to 1, with 0 representing a bid that just covers a carrier's incremental costs and 1 representing the maximum bid that the buyer would accept. If the bidder knows that it is the only bidder -- i.e., it is a monopolist -- it will bid a price of 1. If there is one other bidder, and the first bidder thinks that the second bidder is equally likely to bid any price between 0 and 1, then a bid price of 0.5 for the first bidder would maximize its expected profit from bidding. (It would make a profit of 0.5 on a winning bid and would expect to win the bid 50% of the time, for an expected profit of 0.25; any other bid price would yield a smaller expected profit.) if there are two other bidders (each of whom, the first bidder believes, is equally likely to bid any price between 0 and 1), then the first bidder's best bid is 0.33 (with an expected profit of 0.15). With three other bidders, the first bidder's best bid is 0.25, etc. With a large number of bidders, the first bidder's best strategy is to bid a price that is only slightly higher than its incremental costs.

is lower when there are fewer sellers in the market.¹² Again, a reduction in the number of sellers has an adverse effect on the marketplace outcome.

5. Price as a strategic variable (Bertrand). As an alternative simplification to the general model, economists (since Joseph Bertrand) have often employed models in which sellers choose their prices and assume that other sellers' quantities will adjust. If the cost structures of all sellers are identical and their products or services are identical and uniform, then the number of sellers in the marketplace (beyond two) does not matter; the competitive outcome is always achieved.¹³ But if the firms' outputs are not uniform, and the firms can make choices about quality or variety as well as about price, then the number of firms does matter -- in the expected way: With fewer firms, prices will be higher and product diversity will be more restricted.¹⁴ Also, as was noted above, with non-uniform products the possibilities for unilateral action by a dominant seller become greater, since the potential competitive responses by the smaller sellers in the market are muted by the product differentiation.¹⁵ Again, a reduction in the number of sellers would have an adverse effect on the marketplace outcome.

¹⁴ See Carlton & Perloff.

¹⁵ Interestingly, though Willig, in his Verified Statement, claims that railroad freight services are a differentiated and non-uniform product -- to support his claim that a coordinated outcome would be near-impossible, even with only two railroads providing service on a route -- he fails to acknowledge these other possible consequences of differentiated products.

¹² See, for example, Carl Shapiro, "Theories of Oligopoly Behavior," in Richard Schmalensee & Robert Willig, eds., <u>Handbook of Industrial Organization</u>, vol. 1; and Carlton & Perloff.

¹³ See Shapiro; and Carlton & Perloff. Not too surprisingly, this is the model and assumptions that Robert Willig, in his Verified Statement, implicitly uses in reaching his conclusion that the UP-SP merger would not adversely affect competition, even in markets where the number of carriers is reduced by the merger from three to only two.

6. Quality as the strategic variable.¹⁶ Suppose that the selling price has been fixed in the marketplace, either by formal government regulation or by an explicit or implicit understanding among the sellers that they all expect to be effective. With price removed as a strategic variable, sellers are likely to turn to non-price (i.e., quality) rivalry as a potential means of expanding sales. The same principles of oligopolistic behavior that were discussed for the general case above -- the tension between the jointly beneficial outcome of less (and less costly) quality rivalry and the individual gains from "cheating" (i.e., offering higher quality) -- are applicable here. And, again, the fewer are the sellers in the marketplace, the easier it will be for them to monitor and reassure each other that they are not "cheating." Again, a reduction in the number of sellers will have an adverse effect on the marketplace outcome.

7. Innovation as a strategic variable. Innovation -- the development of new products, processes, or services -- usually requires an investment before the new item can be brought to market or put into place. Further, the successful development is usually probabilistic in nature; there are no assurance: beforehand that the investment will yield a successful outcome. Both of these aspects of innovation imply that the number of sellers in the market will matter. The simple investment perspective means that a new product can be treated as another type of quality-variety decision, and a seller with a sizable market share may be concerned about the cannibalization of its own existing products; a small group of sellers might well conclude oligopolistically that all would be better off if none undertook the investment. In addition, if success in the development of the innovation is a low-probability event at any given time, then

¹⁶ See George J. Stigler, "Price and Non-Price Competition," <u>Journal of Political Economy</u> (1968); and Lawrence J. White, "Quality Variation When Prices Are Regulated", <u>Bell Journal of Economics and Management Science</u> (1972).

the presence of more sellers in the marketplace will increase the likelihood of success and/or hasten its arrival.

For both reasons, then, buyers will benefit from the presence of more seliers in the marketplace rather than fewer. Conversely, a reduction in the number of sellers will have an adverse marketplace outcome.

8. A summing up. From virtually all perspectives and approaches, microeconomics theory strongly indicates that, when entry is difficult and the number of sellers is relatively small, the marketplace outcome will be inferior to that yielded by a competitive structure. Only for the very specialized case where all sellers in the market have uniform cost structures and identical product offerings and they focus solely on price as a strategic variable are entry conditions and the number of sellers (beyond one) irrelevant. This near-universal conclusion that numbers matter when sellers are few has an important corollary for merger analysis: The decrease in the number of sellers in the market that follows from a merger will have an adverse effect on the marketplace outcome, and the adverse effect will be even greater when the initial number of sellers is fewer. As will be clear from the discussion that follows, these conclusions are strongly applicable to the proposed UP-SP merger.

E. Empirical Evidence: General

The predictions of the previous section have been subject to extensive empirical testing. Many dozens of studies of a large number of industries have found that seller concentration affects marketplace outcomes in the ways predicted by the basic oligopoly theories outlined above.¹⁷ (Seller concentration -- either the percentage of the sales in the market that are accounted for by the leading four¹⁸ sellers, or a more comprehensive concentration measure, such as the Herfindahl-Hirschman Index ["HHI"]¹⁹ -- is almost always used as a proxy for the fewness concept developed above. The rationale for using seller concentration follows the same logic as the "dominant seller" construct outlined above: If there are sellers with small market shares, who are restricted in their ability to expand their sales, then a simple count of sellers would be misleading as to the possibilities of oligopolistic coordination; a measure that focuses on the shares of the leading sellers will more likely capture the possibilities of oligopolistic coordination.)

The studies find that, holding other things constant, higher levels of seller concentration tend to be associated with higher profit rates and higher prices.²⁰ These empirical findings hold true for markets where the buyers are industrial customers, as well as for markets where the buyers are final consumers. Studies also show that innovation tends to be slower where seller

¹⁷ See Richard Schmalensee, "Inter-Industry Studies of Structure and Performance," and Timothy F. Bresnahan, "Empirical Studies of Industries with Market Power," in Richard Schmalensee & Robert Willig, <u>Handbook of Industrial Organization</u>, vol. 2 (1989); Leonard W. Weiss, ed., <u>Concentration and Price</u> (1989); and Carlton & Perloff.

¹⁸ In a few studies, a different number of leading firms is used.

¹⁹ This is the sum of the squared market shares of all of the sellers in the market.

²⁰ The profit-focused studies have received extensive criticism; the critics argue: (a) that the profit rates used in these studies are derived from accounting data that do not provide the true economic profit rates that ought to be used; and (b) that the higher profits found in high seller-concentration industries may be due to the greater efficiencies (economies of scale) of sellers with larger sales (larger market shares). Irrespective of the merits of these criticisms of the profit-focused studies, the price-focused studies -- which find the same basic results -- do not have these potential problems.

concentration is at high levels;²¹ that auction markets (e.g., the auctions that the U.S. Government holds with respect to natural resources, such as oil-drilling rights) where there are fewer bidders tend to yield higher prices;²² and, where prices have been fixed by regulation, that fewer sellers in a market tend to bring lesser levels of quality-variety.²³

F. Empirical Evidence: Railroads

Prices (rates) in railroad markets (post 1980^{24}) have been subjected to similar empirical tests. Again, the results are consistent with the theory: Holding constant other factors, markets (routes) that have higher rail carrier concentration levels tend to have higher rates.²⁵ In

²² See McAfee & McMillan.

²³ See George W. Douglas & James C. Miller, III, <u>Economic Regulation of Domestic Air</u> <u>Transport: Theory and Policy</u> (1974); Lawrence J. White, "Quality, Competition and Regulation: Evidence from the Airline Industry," in Richard E. Caves & Marc J. Roberts, eds., <u>Regulating</u> <u>the Product: Quality and Variety</u> (1975); and Lawrence J. White, "Price Regulation and Quality Rivalry in a Profit Maximizing Model: The Case of Bank Branching," <u>Journal of Money, Credit.</u> <u>and Banking</u> (1976).

²⁴ I.e., since the passage of the Staggers Act, which has permitted much more price (rate) flexibility in response to competitive conditions than had previously been true.

²⁵ See Curtis M. Grimm, "Horizontal Competitive Effects in Railroad Mergers," in Theodore Keeler, ed., <u>Research in Transportation Economics</u>, vol. 2 (1985); James M. MacDonald, "Competition and Rail Rates for the Shipment of Corn, Soybeans, and Wheat," <u>Rand Journal of Economics</u> (1987); James H. MacDonald, "Railroad Deregulation, Innovation, and Competition: Effects of the Staggers Act on Grain Transportation," <u>Journal of Law & Economics</u>, (1989); James M. MacDonald, "Concentration and Railroad Pricing," in Leonard W. Weiss, ed., <u>Concentration and Price</u> (1989); Clifford Winston, Thomas M. Corsi, Curtis M. Grimm, & Carol A. Evans, <u>The Economic Effects of Surface Freight Deregulation</u> (1990); Curtis M. Grimm, Clifford Winston, & Carol A. Evans, "Foreclosure of Railroad Markets: A Test of the Chicago Leverage Theory," <u>Journal of Law & Economics</u> (1992); Mark Burton, "Railroad Deregulation, Carrier Behavior, and Shipper Responses: A Disaggregated Analysis," <u>Journal of Regulatory Economics</u> (1993); and Wesley W. Wilson, "Market-Specific Effects of

²¹ See F.M. Scherer & David Ross, <u>Industrial Market Structure and Economic Performance</u>, 3rd ed. (1990); and Wesley M. Cohen & Richard C. Levin, "Empirical Studies of Innovation and Market Structure," in Schmalensee & Willig, vol. 2.

addition, a recent empirical examination of the U.S. Government's solicitations for railroad transportation services (in essence, sole-buyer auctions) including routes currently served by the <u>UP and the SP</u> have also yielded results that are consistent with the auction theory outlined above: On routes where fewer railroads have bid for the contract, rates that the buyer (the Government) has had to pay have been higher.²⁶

G. The Anti-Competitive Consequences of the Proposed UP-SP Merger

The structural characteristics of railroad freight markets are, in important ways, coincident with the conditions described in the theoretical discussion above. Entry by new railroads is extremely difficult. Competition from other modes -- barge and truck -- is often ineffective. For barge to be competitive, both the origin and destination must be close to a navigable waterway that offers a reasonably direct route; also, in winter some northern

Rail Deregulation," Journal of Industrial Economics (1994). In his Verified Statement, Willig criticizes these studies primarily on two grounds: (a) they use waybill (tariff) rates (i.e., "list prices") rather than actual contract rates (transaction prices); and (b) any effects of rail carrier concentration on price is due solely to the differences between monopoly routes and all other routes (i.e., beyond monopoly, the number of carriers does not matter). With respect to the first criticism, McDonald, in his Verified Statement, shows that this problem does not arise in his studies; similarly, Grimm, in his Verified Statement, shows that the problem does not arise in the Winston et al. and Grimm et al. studies; further, the potential errors are in the dependent variables of the statistical studies, which make the errors less likely to create bias in estimate, and also there is no reason to believe that the potential errors are systematically related to the carrier concentration variables. With respect to the second criticism, McDonald's Verified Statement points out that he had already conducted the empirical analysis with the exclusion of the monopoly routes and found results consistent with those contained in his full sample (i.e., that routes where there are fewer rail carriers tend to have higher prices, even excluding monopoly routes); and the comparatively infrequent occurrence of monopoly routes (in the Winston et al. and Grimm et al. studies, the average number of independent rail alternatives on a route is approximately 3) suggests that monopoly would be unlikely to be the sole source of these findings.

²⁶ See the Verified Statement of I.W. Ploth.

waterways are frozen and become unnavigable, limiting the year-round reliability of barge competition. Trucks often do not offer effective competition on long-haul shipments of low value-to-weight items, such as agricultural commodities, mineral raw materials, chemical raw materials, etc. Finally, and most important, there are typically only a literal handful -- from one to four -- of rail carriers that offer service over any given route.²⁷

Accordingly, fewness of sellers of rail freight services is an important characteristic of these markets and can be expected to have the effects described above. Further, for the purposes of merger analysis, a reduction in the number of rail carriers on a route that occurs because of a merger would be expected to have the adverse effects on market outcomes described above.

The proposed UP-SP merger is just such an anti-competitive merger:

-- On routes accounting for about \$2.0 billion in rail freight revenues in 1994, the merger would reduce the number of rail carriers from two to one, creating effective monopolies on these routes.²⁸ These include major routes, such as Los Angeles-Seattle, Los-Angeles-Portland, San Francisco-Salt Lake City, San Francisco-Omaha, and Salt Lake City-St. Louis. The UP-SP's

²⁷ In some instances, source competition -- competition from a supplier of the same commodity located at a different geographical place and served by a different rail route -- may place additional competitive pressure on a given rail route. But if the rail carrier or carriers serving this second route are the same as those serving the first, the effect is nullified. Similarly, destination competition (e.g., alternative ports from which an export-bound rail shipment could be sent) may provide additional competitive pressure; but, again, if the rail carrier or carriers on the second route are the same as on the first, the effect is nullified.

²⁸ See the Verified Statement of Curtis M. Grimm, which is also the source for the other revenue figures in the text.

proposed remedy (discussed below) for these monopoly routes is wholly inadequate and unacceptable.²⁹

-- On routes accounting for about \$5.1 billion in revenues in 1994, the merger would reduce the number of rail carriers from three to two. These include major routes, such as Los Angeles-Chicago, Los-Angeles-Detroit, San Francisco-Chicago, Portland-Detroit, and Houston-Chicago. The UP-SP proposal does not contain any remedy for these routes.

-- On routes accounting for about \$265 million in revenues in 1994, the merger would reduce the number of rail carriers from four to three. These include major routes, such as Chicago-Dallas and Kansas City-St. Louis. The UP-SP proposal does not contain any remedy for these routes.

-- Of the "three-to-two" routes, on routes accounting for about \$2.1 billion in revenues in 1994, the merger would cause the UP-SP market share to rise above 70% -- substantially beyond the 35% level indicated by the USDOJ-FTC "Horizontal Merger Guidelines" -- and clearly creating substantial opportunities for "dominant seller" behavior.

In addition to these clear anti-competitive market changes, the Burlington Northern-Santa Fe ("BN-SF") would be the "other" carrier on many two-carrier routes (and the UP-SP proposal for remedying the creation of monopoly routes would be to grant trackage rights to the BN-SF). Thus, the UP-SP and the BN-SF would face each other ("meet") and be the duopoly sellers on a large number of routes. They would have many opportunities to monitor and reassure (or threaten) each other and thus act zeve an oligopolistic understanding between themselves.³⁰

²⁹ It is worth noting that Willig, in his Verified Statement, does not address these "two-to-one" markets or the proposed remedy.

³⁰ Also, as an additional negative side-effect of the merger, on routes where currently the UP or the SP is the sole rival to the BN-SF, the extensive additional multi-market contacts that

Further, in the instances of auction markets (such as the U.S. Government's solicitations for railroad transportation services, discussed above, and any other situations in which a shipper could establish auction-like bidding by rail carriers), the elimination of one of the bidders (as a consequence of the merger) would mean that the expected prices paid by shippers would be higher. Also, the addition of the BN-SF to some of these markets through the trackage rights arrangement would not improve many of the market outcomes, since the BN-SF was the least aggressive bidder among the rail carriers for the U.S. Government shipments.

Accordingly, the proposed UP-SP merger can be expected to have extensive and substantial anti-competitive effects. In all the markets (routes) where there is a decrease in the number of carriers as a consequence of the merger, prices (rates) will rise and be maintained at higher levels than if the merger had not occurred, and/or service quality and variety will deteriorate, and/or innovation will slacken. The vigor of competition on these routes will clearly diminish, and shippers and their customers will suffer the consequences.³¹

the merger creates would likely enhance oligopolistic coordination on these routes and have adverse effects on market outcomes.

³¹ In his Verified Statement, Willig claims that the eagerness of the rail carriers to steal customers (shippers) from each other, reinforced by the customers' ability to shop around and play off one carrier against another, will be sufficient to maintain these markets' competitiveness. But he totally disregards the effects that the reduction in the number of carriers would have on their tendencies to engage in such behavior; he ignores possible dominant carrier effects; he does not address the "two-to-one" markets; he ignores the meeting-in-multiple-markets effects; and his analysis is fatally undercut by the empirical reality that the presence of more rail carriers does generally make a difference on routes and that the specific auctions set up by the U.S. Government for freight service -- the most powerful example of a single, sizable customer that can shop around and for whom the incentives for rail carriers to steal traffic from each other ought to be strongest -- including routes currently served by the UP and the SP show that the presence of more bidders causes the final bid price to be lower. Contrary to Willig's claims, the number of carriers on a route does matter -- in exactly the way that standard microeconomic theory indicates that it should.

H. The UP-SP's Proposed Remedy Is Unacceptable

As a remedy for the creation of monopoly markets where the UP and the SP are the only two rail carriers currently, the UP-SP proposes to grant trackage rights to the BN-SF. This "remedy" is wholly inadequate and unacceptable. It would not achieve the necessary goal of maintaining whatever vigor of competition currently exists on these routes.

The granting of trackage rights by one railroad to another is, in essence, the rental of the facilities -- with the added feature that the "landlord" remains as a co-user of the facilities with the "tenant." This rental arrangement (as opposed to outright divestiture) creates a number of alternative opportunities for the marketplace outcome to remain non-competitive:

1. The fees could be set so high that the "tenant" carrier is tightly constrained in the rates that it can offer to shippers and thus in its ability to undercut or compete with the "landlord" carrier. The "landlord" can thus assure a non-competitive outcome, high prices, and substantial profits for itself.

2. The "landlord" can cause the "tenant's" services to its customers to deteriorate by interfering with schedules and always favoring itself over the interests of the tenant on any decision, whether it is establishing priorities in dispatching and scheduling trains over the facilities, the scheduling of maintenance, the upgrading of facilities, etc. The "landlord" is thus in a position to force the "tenant" to offer inferior service to its customers and thus allow the "landlord" to maintain higher prices. (This would be an instance of the "dominant seller" paradigm.)

3. In contrast to (but perhaps as a consequence of the threat or actuality of) the first two means by which trackage rights would cause a non-competitive outcome, the extensive dealings between the "landlord" and the "tenant" concerning the trackage rights, scheduling, etc., could

become a vehicle for the exchange of extensive competitive-sensitive information and thus a means by which the two firms could monitor and reassure each other (and could also be a tool for threats by the "landlord") and thus achieve oligopolistic coordination and a less competitive outcome. (Again, the "tenant" in all of these trackage rights arrangements will be the BN-SF, which the UP-SP will be facing in a large number of its markets, so the instances of multimarket contacts -- with and without trackage rights -- will be extensive and the opportunities for non-competitive oligopolistic behavior will be concomitantly extensive.)

These three paths are not mutually exclusive. Combinations of them might be employed. But they all lead to the inferior marketplace outcome of less vigorous competition than if the duplicative track (and complementary facilities) created by the merger were simply divested. Further, the logic of these arguments favoring divestiture is not restricted to the "two-to-one" markets; it applies equally forcefully to the "three-to-two" and "four-to-three" markets.

In addition to these general and powerful reasons why trackage rights are an unacceptable remedy for the anti-competitive effects of this proposed merger, the specific proposal of the UP-SP is unacceptable because it undercounts the instances of true two-to-one outcomes and it fails to provide effective competition in other instances. In the first category, the proposal ignores shippers that are apparently served by only the UP or the SP but for whom the other carrier's tracks are close enough that the shipper's threat to truck its products to the other carrier's facilities or even to build its own track to connect to the other carrier's track serves as an effective check on the first carrier's pricing power; this competitive check would be lost as a consequence of the merger, but the UP-SP proposal would not grant trackage rights to serve this category of shipper. Also, where another carrier connects to the shipper but the destination customer is served only by the UP or the SP, the merger would again increase the UP-SP's effective market power, but trackage rights would not be granted. In the second category, the granting of trackage rights to serve specific points (i.e., shippers) but not specific routes or corridors would mean that the service provided by the BN-SF (the "tenant") could be substantially more indirect and lengthy and thus inferior from shippers' perspectives; effective competition would not be achieved.

For both categories of specific reasons, as well as the general reasons, the UP-SP's proposal to grant trackage rights to the BN-SF is wholly inadequate and unacceptable as a remedy for the anti-competitive consequences of this proposed merger.

I. The Efficiencies Promised by the Merger's Proponents Are Highly Speculative

Efficiencies as a consequence of a merger or acquisition are easy to promise; they are often hard to deliver. The meiding of two organizations -- with their different systems, histories, and cultures -- can often be quite difficult. The recent acquisitions of NCR by AT&T and of Wordperfect by Novell are well-publicized examples of transactions that were trumpeted to provide great efficiencies but that have in fact been financial disasters for the acquiring parties. The promised benefits failed to materialize, for many of the reasons just mentioned. Going farther back in history, the acquisition of Republic Steel by LTV in 1984 was another case in which <u>ex ante</u> the merger partners promised substantial efficiencies but <u>ex post</u> the transaction encountered serious organizational melding problems. In the transportation area, the 1980 merger of Pan American World Airways and National Airlines was another instance of this kind of failure to deliver on promises. And in railroads, the merger of the Pennsylvania Railroad and the New York Central in 1968 was a clear instance of this merger hubris.

Further, in addition to the problems of melding organizations, the promised economies of scale of the larger post-merger entity simply need not occur.³² Larger is not always better than smaller. There are substantial difficulties in managing a larger organization, and these difficulties can offset -- or more than offset -- the apparent economies that are supposed to come from more complete use of physical capacity and elimination of duplication.³³

These efficiency concerns would not normally be the concern of public policy. In competitive markets, firms should be given the maximum leeway to experiment with mergers, scale, and organizational design. If their experiments are successful, the owners of the firms will benefit, and the benefits will also pass through to buyers, through imitation and competitive market pressures; if the experiments are unsuccessful, the owners suffer, and competitive markets move on

Public policy must be concerned, however, where a merger is likely to yield extensive anti-competitive effects, and the efficiency consequences of the merger are promised as an offset or counterbalance. Unless the evidence to support these promised efficiencies is so substantial as to be overwhelming, they ought to be given little weight in the public policy judgment about an otherwise anti-competitive merger -- because the efficiencies are so easy to promise and can easily evaporate, leaving only the anti-competitive effects of the merger. This conclusion is clearly applicable to the proposed UP-SP merger.

³² See David J. Ravenscraft & F.M. Scherer, Mergers, Sell-Offs, & Efficiency (1987).

³³ The Verified Statement of Tom O'Connor and John Darling provide a further discussion of the difficulties of merging two railroads and a specific critique and demonstration that the claimed cost-saving benefits of the UP-SP merger have been substantially overstated by the merger's proponents.

J. If the Proposed Merger is Permitted to Proceed, Substantial Divestitures Are Required.

As currently proposed, the UP-SP merger is seriously anti-competitive, for all of the reasons explained above. If, nevertheless, it is allowed to proceed, substantial divestitures -- of all duplicative (parallel) track and the necessary complementary facilities -- are necessary to minimize the competitive harm caused by the merger. As was indicated above, the granting of trackage rights is not a suitable remedy. Only divestitures -- to financially capable rivals, who would compete vigorously and would be unlikely to become part of an oligopolistic coordination outcome -- are acceptable.

Divestitures are a standard remedy in antitrust cases. By requiring divestiture, antitrust authorities preserve "owner-versus-owner" competition in the relevant markets and avoid the "landlord-competing-with-the-tenant" problems that were described above. For example, the divestiture of bank branches has become a commonplace remedy for bank mergers that would otherwise create unacceptable levels of bank concentration in relevant markets; and it would be seen as <u>ludicrous</u> for a bank-merger proponent to suggest, in lieu of a divestiture, that the merged entity merely offer to rent part of the floor space at some of its branches to an aspiring entrant.

Divestiture has also been required by the U.S. Department of Transportation ("DOT") as a pro-competitive remedy in a merger case involving airlines. In 1986 when Texas Air (the owner at the time of New York Air and Continental Air Lines) sought to acquire (merge with) Eastern Airlines, the DOT -- with the encouragement of the Antitrust Division of the U.S. Department of Justice -- conditioned its approval of the merger on the requirement that Texas Air <u>sell</u> (to Pan American World Airways) takeoff-and-landing slots at National, LaGuardia, and Logan Airports and also to <u>sell</u> (to Pan Am) airport gates at LaGuardia and Logan, so as to preserve airline competition in the Boston-New York-Washington corridor.³⁴

Divestitures should be used as the remedy in this merger,

K. Conclusion

The proposed UP-SP merger would be anti-competitive and should not be permitted to proceed. It would seriously and substantially reduce competition in a large number of rail transportation markets, yielding an adverse effect on shippers and their customers in these markets. Prices (rates) would be higher, and/or the quality-variety of service would be lower, and/or innovation would be delayed. This conclusion is grounded in solid, standard, and thoroughly tested microeconomics (oligopoly) theory; it is supported by data analyses drawn from a large number of industries, from the railroad industry itself, and even from the bids on U.S. Government contracts involving rail services on routes that the UP and SP currently serve. It is clear that in rail freight markets, as in other markets with only a few sellers, the number of sellers (rail carriers) matters, and a reduction in their number through this merger would surely have an adverse effect on the marketplace outcomes.

If the merger is permitted to proceed, substantial divestitures should be required, so as to minimize the damage to competition. The granting of trackage rights is not an acceptable remedy; divestitures are necessary.

³⁴ See George W. Douglas, "The Importance of Entry Conditions: Texas Air's Acquisition of Eastern Airlines," in John E. Kwoka, Jr., and Lawrence J. White, eds., <u>The Antitrust</u> <u>Revolution</u> (1989). Though both Eastern and Pan Am subsequently failed financially, their failures were due to causes unrelated to their Northeast corridor shuttle services.

VERIFICATION

STATE OF NEW YORK) ss. CITY AND COUNTY OF NEW YORK

LAWRENCE J. WHITE, being duly sworn, deposes and says that he has read the foregoing document, knows the contents thereof, and that the same is true and correct.

Jawang 7 Waile AWRENCE J. WHITE

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Subscribed and sworn to me by L. rence J. White this 21- day of March 1996.

Notary F

DEBRA A. GU blig. State of M Noter

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VERIFIED STATEMENT

OF

JAMES M. MACDONALD

INTRODUCTION

My name is James M. MacDonald, and I am Senior Research Associate in the Department of Agricultural Economics at Ohio State University. At present, I am on detail at the Economic Research Service of the U.S. Department of Agriculture, where I was previously employed as an economist between 1980 and 1987. Between 1987 and 1994, I was Associate Professor of Economics and Management at Rensselaer Polytechnic Institute, Troy, New York where I taught courses in managerial economics, industrial organization, econometrics, and regulatory economics. I remain on the Rensselaer faculty as an adjunct professor, teaching in the Institute's executive M.B.A. program.

My teaching and professional research focuses on the subjects of industrial organization and the economics of government regulation. I have written over 30 professional articles on those subjects. My published research emphasizes statistical studies of the causes and effects of corporate diversification, integration, and entry decisions; the effects of competition on pricing and productivity growth; and the effects of regulatory reforms in transportation, telecommunications, and food safety.

I have particular experience in empirical analyses of the economics of railroad transportation. I have published several articles on railroad pricing, which analyze the effects of competition, contractual terms, and shipment characteristics on railroad rates for the shipment

of coal and of various agricultural commodities. Two of the articles specifically assessed the likely effects of mergers on rail rates. I have also published several articles and a 1989 U.S.D.A. report on the effects of the 1980 Staggers Act reforms on rail transportation. My attached curriculum vitae gives a more complete description of my qualifications.

In this proceeding, Applicants have relied upon the economic analysis presented in the Verified Statement of Professor Robert D. Willig (Vol. 2, pp. 550, et seq.). Apparently troubled by the Department of Justice's reliance on studies conducted by me and others that conclude that a reduction in the number of rail carriers from three to two through a merger would lead to higher prices (Vol. 2, p. 555). Mr. Willig launched a pre-emptive attack as to the validity of the conclusions reached in those studies. Part 1 of this Statement summarizes the research outlined in my four publications, which conclude that reductions in the number of competing railroads will likely result in increases in rail rates. Part 2 negates criticisms of the research, in particular those offered by Professor Robert Willig in his statement.

PART 1: RAILROAD RATES WILL LIKELY INCREASE AS THE NUMBER OF COMPETITORS FALLS.

In the late 1980's, I published 4 papers that investigated the effects of competition on the rates that railroads charged for the movement of 3 major agricultural commodities -- corn, soybeans, and wheat. The papers focus on export movements to ports from the largest grain producing states in the Great Plains, the Pacific Northwest, and the Corn Belt.

 "Competition and Rail Rates for the Shipment of Corn, Soybeans, and Wheat." <u>The RAND Journal of Economics</u> 18 (Spring, 1987): 151-163.

- "Railroad Deregulation, Innovation, and Competition: Effects of the Staggers Act on Grain Transportation." <u>The Journal of Law and Economics</u> 32 (April, 1989): 63-95.
- Effects of Railroad Deregulation on Grain Transportation. U.S. Department of Agriculture. Economic Research Service. Technical Bulletin No. 1759. June 1989.
- "Concentration and Railroad Pricing," in Leonard Weiss, ed., <u>Concentration and</u> <u>Price</u> (Cambridge, MA: The MIT Press, 1991).

The studies relied on data from 1983 (1;4) and from the 1981-85 period (2;3). In summarizing the results, I will refer in parentheses to the relevant study as numbered above, and to the page number in the study.

My analysis of the relation between competition and rail rates was conducted for several purposes. First, because the effects of rail deregulation were expected to depend partly on the nature of competition, it was important to assess the extent of competition in the industry. Additionally, rail mergers were an important issue, then as now, and it was important to determine whether there was any likelihood that mergers would result in railroad market power. Finally, I attempted to describe the nature of competition in a leading industry, and to determine the effect of competition on prices.

My studies analyzed bulk agricultural commodities because my employer at the time, the U.S. Department of Agriculture, was interested in the emerging effects of railroad regulatory reform on U.S. agriculture. Railroads were (and are) the primary mode for transporting grain in the United States, and grain is an important commodity for railroads, accounting for nearly 10% of railroad ton miles. Because railroads haul grain under a wide variety of competitive

conditions, grain also provided a useful opportunity to study the effects of differing competitive conditions on pricing.

The rail industry offered an unusual opportunity to study prices in a wide range of transactions, through the use of the Rail Waybill File, which contained data from a large random sample of railroad Waybills. Each record in the file referred to one shipment and included information on the date of the shipment, the revenue that the railroad received, a detailed specification of the commodity being shipped, the size of the shipment (in tons), the number and type of railcars used in the shipment, precise origin and destination points and the distance between them, and the railroads involved in the movement of the commodity. The railroad rate analyzed in the studies was revenue per ton mile, defined as revenue divided by the product of tons and miles.

Since the Waybill file, as described above, contains no direct information about competition, I used information in the file to develop several measures, based on the location where the rail shipment originated, *i.e.*, the origin point. From the origin point I determined what Crop Reporting District (CRD) the shipment originated in. ¹ CRD regions are consistently referred to in discussions of grain merchandising among merchandisers and among researchers.² Because statistical analyses of prices and grain flows typically use CRD's, identification of CRD's allowed me to tie my research to others' studies.

¹ Most Great Plains and Corn Belt states have seven to nine CRD's. For instance, a state like Kansas (large and nearly rectangular) would be divided into nine smaller rectangles for the east, west, and central, and then north, south, and central regions.

² The agricultural economics articles cited in my papers almost always base their analyses on substate regions, such as NE Kansas or SW Indiana that are also CRD's.

After I matched an origin point to a CRD, I used the Waybill file to estimate the total volume of railroad grain flows originating in a CRD, the number of different railroads serving a CRD, and the market share of each railroad in a CRD's grain originations. The number of different railroads in a CRD ranged from 1 to 7 in the corn and soybean samples, and 1 to 5 in the wheat sample. But a simple count of railroads would not be a good measure of competition, because one could be a main line, while others could be branch lines some of which are poorly maintained. Thus, I constructed a "Herfindahl" (H) measure of railroad competition: the reciprocal of the sum of squared market shares of railroads in a CRD.³ A CRD with one railroad (hence a share of 1) would have an H of 1. A CRD with 3 railroads, one a mainline with a share of .8 and the other two branch lines with shares of .1, would generate an H of 1.52. If one of those branch lines were upgraded to a main line with a market share of .45, while the original main line fell to .45 and the other branch line remained at .1, the H measure would rise to 2.41. In short, the H measure is sensitive to the number of competitors and their market shares, and the H measure rises to equal the number of competitors as their shares become more equal. Thus, if all three lines had equal shares, the H measure would equal 3.

Higher H values suggest more effective competitors in a market. I prefer the H measure to a simple count of railroads because the market share information in the H measure provides a useful summary indicator of service quality provided on the lines in a CRD. H measures are widely used in studies of competition.

A railroad can face competition not only from other railroads, but from also from barges on the Columbia River in the Northwest and on the Missouri- Mississippi system in the Corn

³ Also referred to as the Herfindahl-Hirschman Index of Concentration ("HHI") (Willig, p. 567).

Belt and Plains. If a shipper is not located on a navigable river, that shipper can truck grain to the river if faced with a high rail rate. Because truck rates will vary with distance, the effectiveness of varge and truck competition will depend on distance from a river or export port. For example, if a shipper is 50 miles from a barge-loading location, water competition will restrain rail rates far more effectively than if the shipper is 200 miles from the water.

I used Waybill information on the shipment's origin station, and a Rand-McNally road atlas, to calculate the straightline distance from the origin to the river or export port. That distance, denoted MIWATER in the studies, was my measure of truck-barge competition.

I used the same sources, plus a railroad atlas, to also calculate measures of distance from the origin to the nearest competing railroad. But that measure fails to take into account the nearest railroad's characteristics (*i.e.*, main line/branch line; volume; speed of service; ease of access to the line) that are implicitly captured in a market share measure, and hence are inferior to the H measure.

In order for my analysis to link competition to rates, other factors that affect rail costs and hence rates, including the size of the shipment, the nature of the equipment used, the volume flowing over the route, and the distance between origin and destination, had to be considered. All of these factors are available in the Waybill file, or can be calculated based on data in the file.

Variation of rates across grain shipments was studied by utilizing a multiple regression analysis. Each study found that the factors that were expected to influence costs had significant effects on rates in expected directions. That is, rates fell with greater shipment sizes and greater route volumes because railroads organize trains and shipments in more cost efficient ways when moving larger quantities (1, pp. 157-158; 2, pp.82-86). Similarly, rail costs (and rates) fell as railroads substituted 100 ton covered hopper cars for 70 ton boxcars in the early 1980's (2, p. 85). My studies also found that rail costs rise as shipment distances increase, but not by very much, so rail rates (on a per ton mile basis) fall.

Each study also found that the measures of competition had statistically significant effects on rail rates. Using the 1981-1985 data from (2), the studies show that rates increase by 6.7%, on average, as market concentration changes from 3 equal sized competitors to 2 in wheat, and by another 11.7% as market concentration changes from 2 to a monopoly. The effects are larger in corn, where changes from 3 to 2 equal sized competitors raises rates by 10.9%, while market concentration changes to monopoly from duopoly raises rates by 19.5% (2, pp. 86-87). The soybean results fall between those two.⁴

Water competition also matters. The results suggested that wheat rates rose by 14.7% as MIWATER varied from 200 to 400 miles, a typical change in the sample, and rose another 10% as MIWATER increases again to the sample extreme at 600 miles. Corn and soybean shippers are closer to river competition; a typical change, from 50 to 150 miles, would raise rail rates by 9.3% (2, p. 85).

I performed several sensitivity tests in the studies. First, it is reasonable to expect that a railroad monopoly would have more power to raise rates if that monopolist was far away from any water competition. That hypothesis proved to be correct (2, p. 87). In the wheat analysis, a shift from duopoly to monopoly at a distant point, 500 miles from barge competition, would raise rates by 14.2%, while the shift from 3 to 2 competitors would raise rates by 8.1% (each effect is about a fifth larger than the effect at the average distance, as noted above). In corn, a

⁴ It should be noted that the 1983 data used in (1) and (4) result in slightly larger effects for corn, and wheat effects that are smaller by a third.

3 to 2 shift would raise rates by 15.2%, and the shift to monopoly at a distant point of 150 miles would raise rates by 27.5% (each about 2 fifths larger than the mean effect noted above). Effects would, of course, be correspondingly smaller as we move closer to water points from the mean distances.

Next, my statistical analysis specified a particular log-linear relation between H and prices. A log-linear relation assumes that percentage changes in H generate constant percentage changes in price. Alternatively, there could be a linear relation with unit changes in H generating constant unit changes in prices. It is also possible that there could be a threshold relation, in which changes in H only effect prices at (low) levels of H. I reported the results of alternative specifications in (1),(2), and (4), and found that the best model was the log-linear relation.

Few grain shippers have a wide variety of transportation choices. Some face a single railroad, with limited alternative options. Some are able to choose among a small number of competing railroads, and some can choose from a larger set of alternatives that include railroads, trucks, and barge carriers. These studies consistently find that the range of alternatives affects rates. The conclusion is clear: more competitors lead to lower rates.

PART II. PROFESSOR WILLIG'S CRITICISMS OF THE STUDIES

A. RAIL RATES DERIVED FROM WAYBILL DATA

In his critique of the Waybill data, Professor Willig first cites a February 9, 1994 letter to UP counsel from James Nash of the ICC: "Any study of revenue on less than an entire railroad system or at more detail than the 3-digit STCC level may not be reliable. The ICC Waybill Sample should not be the sole source of data when studying small areas (less than a complete railroad) or for commodity studies at less than the three digit STCC level." Of course, this admonition can be applied to virtually any sample used in empirical economic analyses, and more precise and informative versions usually are included (or should be) in the documentation provided with sample data. That is, the Rail Waybill file is a stratified random sample of all waybills. Because the file is a sample, there may be only a small number of sample observations of movements of a particular commodity along a particular corridor. One could try to use those observations to generate estimates of total annual revenue, total annual volume, or annual mean revenue per ton mile in that particular corridor. But those estimates would be necessarily quite imprecise (the true revenue, volume, or mean rate could be far higher or lower than the estimate) because of the small underlying sample size.

But, the purpose of hypothesis testing in econometrics is precisely to take account of the fact that our data are samples, not complete censuses, and I followed standard econometric practice by reporting not only the estimated regression coefficients, but also the coefficient standard errors, sample sizes, and standard errors of the estimate for analyses of large samples of data (up to 7,803 observations). The reported statistics are explicit measures of reliability, and they show that the estimated coefficients have a high degree of reliability.

Relevant criticisms of Waybill data generally concern the ways in which revenues from confidential contracts are reported in the file. Until the passage of the Staggers Act in 1980, almost all grain was shipped under publicly reported tariff rates. The Staggers Act allowed for much wider use of confidential contracts between railroads and shippers. Contract: often set rate and service guarantees, as well as shipper volume and timeliness commitments, and sometimes provide means of adjustment as well as financial incentives tied to fulfillment of guarantees and commitments. By 1985, approximately 60% of railroad grain volumes moved under contract rates rather than tariffs (the percentage was to fall in later years). Professor Willig, in his statement, asserts that the revenue data used in my studies were often "masked," in order to preserve confidentiality. Masking involves inflating or deflating contract revenues in a commodity class, so as to mask the true rates offered by any given contracting railroad. Willig asserts that revenue masking renders my price data unreliable (pp. 564-566). To support his position, Professor Willig quotes again from the 1994 letter from the revenue Nash: "Railroads are permitted... to replace the contract revenue with their estimate of the revenue a comparable tariff move would generate." This concern is misplaced, however, because masking began in 1986,³ and my articles use data from the period 1981-1985. Hence, my studies reflect no revenue masking. Professor Willig's objection simply does not apply to these studies.

Another objection to the use of Waybill data in my papers (1,2) was that railroads only entered applicable tariff rates on the Waybill, even for shipments negotiated under contracts (one could view this as a version of masking). If that claim were true, and if contract rates were generally below the associated tariff rates, then there would be a systematic bias in the data. To evaluate that claim, I reported comparisons of Waybill rates with the applicable tariff rate on each of 25 heavily travelled routes (heavily travelled routes are most likely to use contracts). On average, the Waybill rates on these routes were 22% below corresponding tariff rates in 1983, which makes it clear that the revenues reported on the Waybill were not simply tariff rates (1, fn. 4).

⁵ According to a published article by Eric Wolfe, who manages the development of the Waybill file for the Association of American Railroads. The Interstate Commerce Commission's Public Use Waybill File: Concerns for Misinterpretation. 1991 Journal of the Transportation Research Forum 32: 263-265.

Another check on Waybill rates (2, pp. 76-78) compared the difference in cash grain prices between a country elevator and an export port (the price spread), which should reflect the costs of transport and handling of grain between the two locations.⁶ U.S.D.A.'s Agricultural Marketing Service collects and reports monthly data on cash prices and price spreads among a variety of different locations. Between 1981 and 1985, the drop in Waybill rates almost exac,'y match the narrowing of price spreads for corridors in the Corn Belt and Great Plains. If Waybill rates were masked so that they did not reflect real rates, waybill rate changes would not have matched changes in price spreads.

Finally, in (2) and (4), I reported that Waybill rates on export moves showed a complex pattern of change in the post-Staggers period. In particular, rail rates for export shipments to Gulf and West Coast ports fell sharply by 1985, while rates to East Coast ports remained the same or rose, in some cases quite sharply. That sort of pattern might lead one to question whether the pattern was merely an artifact of railroad reporting practices. But the reliability of Waybill rates was borne out when grain flows in the late 1980's shifted sharply away from East Coast ports to Gulf Coast ports, just as one would predict on the basis of the Waybill rate trends.⁷

B. MY RESULTS ARE NOT DRIVEN BY MONOPOLY OBSERVATIONS.

In his statement, Professor Willig argues that my finding of a strong connection between the Herfindahl index of railroad concentration and railroad prices probably reflects the influence

⁶ If they did not, then arbitrageurs could make money exploiting spreads until the spreads did move to reflect transport and storage costs.

⁷ For evidence on the pattern of grain flows, see Jerry D. Norton and Keith A. Klindworth, "Railcars for Grain: Future Need and Availability," U.S. Department of Agriculture, Office of Transportation, July, 1989.

of monopoly (pp. 570-572): "Of course it might be the case that concentration does matter positively for price, but the finding of the statistical correlation would not reliably prove it, because that correlation would be in evidence just from the monopoly effect, regardless of the behavior of the three to two cases" (p. 571).

Three of the 51 CRD's in the corn/soyt can sample were monopoly districts, as were 10 of the 52 CRD's in the wheat sample. Those CRD's have minimum values of the Herfindahl index, 1. If the monopoly CRD's also have persistently high rates, then it is possible that they alone could have driven the results on the H variable, even if there were no systematic rate differences among those CRD's that were not monopolies.

This question was specifically addressed in my 1991 publication (4). The late Professor Leonard Weiss requested that I summarize my 1987 article, and add several new pieces of information, for the well-known book that he edited, <u>Concentration and Price</u> (MIT Press, 1991). Professor Weiss requested that I re-estimate my equations without observations from monopoly districts to determine whether the results were driven by monopoly, or if they remained valid as one moved from three to two shippers. He thus had precisely the same question in mind as Professor Willig. In my article for that book (4), I summarized the distribution of the estimated Herfindahl indexes and railroad numbers across districts, and reported the effects of dropping observations from monopoly districts. "The regressions were remarkably similar to the old. Coefficient values and significance levels showed hardly any change at all. In particular the coefficients on rail competition in the corn and wheat samples each increased imperceptibly, to -.283 in corn and -.111 in wheat (or changes of 0.001 and 0.602). The degree of oligopoly appears to matter, as does the transition to monopoly." (p. 210)

As shown in that article, the rail results were not driven by the monopoly districts, and the results of the analysis remain the same, even when we exclude those least competitive markets. I should emphasize that the results do not imply that movement from 3 railroads to 2 has the same impact on price as a movement from 2 railroads to 1. The coefficient estimates the percentage change in price resulting from a percentage change in the Herfindahl index; for example, the finding of a coefficient of -.283 in corn indicates that rates should fall by .283% for each 1% increase in the Herfindahl index of concentration. Since a movement from 2 to 1 is a much bigger percentage change than a movement from 3 to 2, the corresponding percentage price change will also be bigger, as reported above in Part I.

CONCLUSION

Although the four studies considered only agricultural commodities and did not look at other commodities carried by railroads, the grain and oilseed products that I studied are carried under a wide range of competitive conditions, and thus provide an opportunity to isolate the extent to which rail rates vary as competitive conditions vary. The studies find that competitive conditions matter, in that rates increase as one moves from 3 competing carriers to 2, and rates increase again as we move from 2 carriers to 1. Rates also increase as intermodal opportunities (barges) become more distant. The results are robust, in that the same patterns appear for different commodities, for different time spans, and for different specifications.

Further, the conclusions reached in my studies remain valid in today's marketplace. Railroads have the same financial motivations that they had in 1985, the last year in my datasets; that is, if raising rates would lead to increased profits, there is no reason to expect railroads to forego that opportunity. They continue to operate in the largely deregulated environment established by the 1980 Staggers Act. There nave been no dramatic changes in the technologies for transporting grains and oilseeds. Shippers continue to face varying competitive conditions, ranging from a single railroad and no barge opportunities to several railroads, to several railroads and nearby waterborne alternatives; since 1985, there has been no entry of new railroads or barge opportunities into areas of limited competition. There is no objective reason to believe that competitive conditions that were important in 1985 are unimportant today.

VERIFICATION

Personally appeared the undersigned James MacDonald, who under oath states that the information contained in the foregoing Verified Statement is true and correct.

James MacDonald

Sworn to and subscribed before me this 264 day of March, 1996.

Acarlie A Jacoba Notary Public My Commission Expires: 2/28/99

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"Estimating Scale Economies and Structural Change in Livestock Slaughter." December 1996.

"Demand, Information and Competition: Why Do Food Prices Fall at Seasonal Peaks?" October 1995.

Honors and Awards:

1986 Administrator's Special Merit Award for Outstanding Research, Economic Research Service, U.S. Department of Agriculture.

1987 Administrator's Special Merit Award for Excellence in Situation and Outlook, Economic Research Service, U.S. Department of Agriculture.

1987 U.S. Department of Agriculture Unit Award for Superior Service, for preparation of Food Marketing Review 1985.

1987 Outstanding Research Paper Award, Agriculture and Rural Transportation Chapter, Transportation Research Forum.

Research Funding:

"Productivity Growth and Structural Change in Meat Industries" (with Michael Ollinger). USDA Economic Research Service, \$25,000.

"Productivity Measurement in Telecommunications" (with J.R. Norsworthy), New York State Public Service Commission, \$120,000, 1991-92.

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"The Effects of Rail Deregulation on Labor" (with Linda Cavalluzzo), European Association for Research in Industrial Economics, Stuttgart, Germany, September 1992; American Economic Association, Washington, December 1990.

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VERIFIED STATEMENT

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OF

JOSEPH J. PLAISTOW

VERIFIED STATEMENT OF JOSEPH J. PLAISTOW

CONTENTS

I.	QUALIFICATIONS
п.	INTRODUCTION
	A. Western Trackage Rights 180 B. South Texas Trackage Rights and Purchase 180 C. Eastern Texas-Louisiana Trackage Rights and Purchase 181 D. HoustonMemphis Trackage Rights 181 E. St. Louis Coordinations 181
III.	THE AGREEMENT DOES NOT SOLVE THE HARMS TO COMPETITION ARISING OUT OF THE MERGER
	 A. Analytical Model
	1. Reciprocal Switching: 185 2. Standard Switching Charges: 186 3. Intra-terminal Switching Charges: 187
	 D. Joint Facility Charges
IV.	MY ECONOMIC EVALUATION OF 26 STUDY MOVEMENTS OVER TRACKAGE RIGHTS LINE SEGMENTS
	 A. The Cotton Belt Corridor
	Corridor 192 D. The New Orleans to San Antonio Corridor 192
v.	CONCLUSIONS
VI.	VERIFICATION
VII.	TABLES 1 THROUGH 8 195
VIII.	APPENDIX A

VERIFIED STATEMENT OF JOSEPH J. PLAISTOW

I. QUALIFICATIONS

My name is Joseph J. Plaistow, and I am a Senior Consultant for Snavely King Majoros O'Connor & Lee, Inc. with offices at 1220 L Street, NW, Washington, DC 20005. I graduated in 1967 from Michigan Technological University with a Bachelor of Science Degree in Metallurgical Engineering. In 1972 I graduated from the University of Minnesota with a Masters Degree in Business Administration. I was employed by Burlington Northern Railroad for 15 years as Director of Costs and Economic Analyses in the Finance Department, as Director of Equipment and Service, and Director of Planning and Equipment in the Food and Manufactured Products Business Unit of the Marketing Department from 1972 to 1987. In 1987 and 1988, I was employed by FMI, Inc. as a Vice President managing efficient operation of refrigerated boxcars. In 1988, I joined Snavely King & Associates (now known as Snavely King Majoros O'Connor & Lee, Inc.).

I am a Past President of the Washington Chapter of the Transportation Research Forum and a member of the Association for Transportation Law, Logistics and Policy. I am also the national Secretary of the Cost Analysis Chapter of the Transportation Research Forum.

In 1976 I was admitted to practice before the Interstate Commerce Commission, as a non-attorney practitioner. I am familiar with practice before the Commission, and I have testified before the Board and the predecessor Interstate Commerce Commission dozens of times on cost and economic issues. I also submitted a Statement in this proceeding on behalf of KCS, *i.e.*, *Comments of Kansas City Southern Railway Company on Proposed Procedural Schedule*, (KCS-3) dated September 18, 1995.

- 177 -
II. INTRODUCTION

I have been asked by The Kansas City Southern Railway Company ("KCS") to analyze the September 25, 1995 Agreement between Applicants on the one hand, and Burlington Northern Railroad Company and The Atchison, Topeka and Santa Fe Railway Company (collectively "BNSF") on the other hand.¹ Because of the unprecedented harm to competition that would result in an unconditioned merger of UP and SP, Applicants entered into the Agreement, which purports to ameliorate the competitive harm by granting trackage rights to BNSF.² I was retained by KCS to determine whether the economic realities inherent in implementation of the Agreement will result in the Agreement's alleviating the competitive harms resulting from the merger.³

As an initial matter, I prepared maps that depict pre-merger competition between UP and SP and the lines covered by the Agreement. I also constructed maps reflecting the trackage rights affected by the individual provisions of the Agreement.⁴

³ Other KCS witnesses address this issue from an operating perspective.

¹ This Agreement (including the November 18, 1995 Supplemental Agreement) is contained in Volume I of the Application, pp. 318-359. References herein will refer to "the Agreement" and, where necessary, to the page number within Volume I of the Application.

² When a merger harms competition, regulatory approval, if any, must be conditioned upon the granting of alternative access to competitively disadvantaged markets through line divestitures or through trackage or haulage rights granted to mitigate the loss of competition for shippers' freight traffic in these markets. Trackage rights and haulage rights are both operating agreements allowing a tenant carrier to carry out operations over the landlord/owner's tracks. Primary differences between trackage and haulage rights are that trackage rights call for the tenant to provide equipment, crews, large volumes and labor protection. Haulage rights require none of these.

⁴ The following provisions of the Agreement were neither mapped nor analyzed, *i.e.*, the I-5 corridor (¶ 2, p. 322) because it does not involve a grant of trackage rights from UP or SP to BNSF; and the Southern California Access (¶ 3, pp. 322-323; 350) because BNSF grants trackage rights to UP/SP.

Map 1 reflects the routes over which SP competes head-to-head with UP over parallel lines. Map 2 reflects the routes over which SP competes head-to-head with UP over the same tracks pursuant to trackage rights agreements. Map 3 reflects the routes affected by the Agreement.

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Map 1



Snavely King Majoros O'Connor & Lee, Inc.

Map 2





February 14, 1996

Snavely King Majoros O'Connor & Lee, Inc.

Maps 4 through 7 reflect the 3,912.4 miles of trackage rights granted to BNSF under the Agreement.⁵

A. Western Trackage Rights

The Western Trackage Rights⁶ provision involves 868.7 miles of UP track and 1,224.8 miles of SP track, which include SP's line between (i) Denver and Salt Lake, (ii) Ogden and Little Mountain, Utah, (iii) Weso, Nevada and Oakland, California; and (iv) Oakland and San Jose, California; and UP's line between (i) Salt Lake and Ogden; (ii) Salt Lake and Alazon, Nevada; and (iii) Weso, Nevada and Stockton, California; and UP and SP's lines between Alazon and Weso, Nevada. (Map 4)

B. South Texas Trackage Rights and Purchase

The South Texas Trackage Rights and Purchase⁷ provision involves 673.0 miles of UP track and 253.4 miles of SP track all within Texas' borders, which include UP's lines between (i) Ajax and San Antonio, (ii) Houston (Algoa) and Brownsville, (iii) Odem and Corpus Christi, (iv) Ajax and Sealy, (v) Kerr and Taylor, (vi) Temple and Waco, (vii) Temple and Taylor, and (viii) Taylor and Smithville; and SP lines between (i) San Antonio and Eagle Pass and (ii) El Paso and Sierra Blanca.⁸ (Map 5).

- ⁵ 1,671.5 miles of UP tracks and 2,240.9 of SP tracks.
- ⁶ Agreement, pp. 318-321; 349.
- ⁷ Agreement, pp. 323-325; 350.

⁸ A segment I do not treat in this verified statement is the segment between Dallas and Waxahachie that UP will sell to BNSF for \$20 million.











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C. Eastern Texas-Louisiana Trackage Rights and Purchase

The Eastern Texas-Louisiana Trackage Rights and Purchase⁹ provision involves 7.4 miles of UP track and 187.1 miles of SP track, which include UP tracks between (i) Avondale to West Bridge Junction, Louisiana and (ii) Westwego and West Bridge Junction, Louisiana; and SP tracks between (i) Houston, Texas and Iowa Junction, Louisiana, (ii) Dayton, Texas and Baytown, Texas, (iii) Avondale, Louisiana and West Bridge Junction, Louisiana, and (iv) Bridge No. 5-A in Houston. SP's line between Iowa Junction and Avondale, Louisiana will be sold to BNSF for \$100 million. (Map 6)

D. Houston--Memphis Trackage Rights

The Houston-Memphis Trackage Rights¹⁰ provision involves 101.4 miles of UP track and 575.6 miles of SP track, which include SP's track between (i) Houston, Texas and Fair Oaks, Arkansas, and (ii) Brinkley and Briark, Arkansas; and UP's track between (i) Fair Oaks, Arkansas and Bridge Junction, Arkansas and (ii) North Little Rock and Pine Bluff, Arkansas. (Map 7)

E. St. Louis Coordinations

The St. Louis Coordination¹¹ provision involves UP's 1.5 mile line between Grand Avenue and Gratiot Street in St. Louis.¹²

- ¹⁰ Agreement, p. 326-328; 352.
- ¹¹ Agreement, p. 328-329.
- ¹² Because of the length of this line, it is not reflected on a separate map.

Agreement, pp. 325-326; 351.



BNSF Agreement





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III. THE AGREEMENT DOES NOT SOLVE THE HARMS TO COMPETITION ARISING OUT OF THE MERGER

My primary objective has been to analyze the economic conditions under which BNSF will compete with UP/SP over the trackage rights granted in the Agreement. Applicants assert that any harm to competition that will result from the merger will be outweighed by increased single line service.¹³ This position overlooks the fact that the BNSF trackage rights are not economically competitive and even with single line service, BNSF will not be able to develop significant market share. If the underlying economic considerations of the Agreement's trackage rights sections do not alleviate the anti-competitive effects of the merger, then the trackage rights compension scheme within the Agreement must be adjusted so that competitive relief is provided. If there is no trackage rights compensation scheme that would permit effective competition, then a more effective remedy is called for, *e.g.*, the divestiture of parallel, duplicative track over the Central Corridor, the Control Belt Corridor and the New Orleans to San Antonio corridor as a comprehensive solution.

BNSF's ability to compete against each corresponding UP/SP line segment depends primarily on two factors: (1) the Agreement's level of required compensation to UP/SP, and (2) BNSF's economic efficiency as reflected in its cost structure. The compensation factor is set in the Agreement, which specifies that for most carload movements, the trackage rights compensation is 3.1 mills per ton-mile. (Agreement, p. 331). To determine the underlying

¹³ Larry M. Lawrence, Benefits to Shippers of the Market Access Agreement Among Union Pacific, Southern Pacific, Burlington Northern and The Atchison, Topeka and Santa Fe Railway, pages 2 and 3, filed with BN/SF-1, December 29, 1995.

economic efficiency of BNSF's competing for the available traffic with UP/SP, I relied upon the URCS cost model.¹⁴

BNSF, as a tenant on UP/SP's track will be unable to develop significant market shares, which will render it unable to develop the volumes necessary to achieve an efficient cost structure. High traffic volume is essential if a trackage rights tenant is to develop an efficiently low unit cost structure. On the other hand, low volumes result in high unit costs, making it impossible to set rates low enough for the tenant (as a new market entrant) to attract significant traffic volume. High rates result in lower volumes, and so on until the supply of the tenant's service over the trackage rights reaches equilibrium with the demand for the tenant services at the rates the tenant can afford to charge. Accordingly, the end result will be that BNSF, as a tenant on UP/SP's track, will experience high unit costs for trackage rights operations.

UP/SP's Application suggests a declining unit cost structure and claims that the combined UP/SP will be attracting greater volumes because of the merger. Over the corridors with parallel, duplicative track, Applicants claim they will realize tremendous cost efficiencies with a resultant downward pressure on their unit cost structure. UP/SP's declining costs structure paired with BNSF's higher than system average cost structure widens the gap between UP/SP's lean, efficient cost structure and the inefficient and high

¹⁴ The cost model used in my analysis is the Uniform Rail Costing System (URCS). URCS is the Commission's methodology for developing variable costs of freight shipments. URCS was adopted by the Board as the preferred method for developing costs in disputes adjudicated before the ICC. (See, Ex Parte No. 431 (Sub. - No. 1), Adoption of The Uniform Railroad Costing System as a General Purpose Costing System for all Regulatory Costing Purposes, decided September 8, 1989.) Parties presenting evidence are permitted to use other methodologies, but those parties bear the burden of establishing the validity and superiority of their substitute methodology and resulting cost estimates.

unit costs the BNSF trackage rights tenant confronts. In my economic evaluation, I investigate the effect of higher than average BNSF unit costs as my Base Case, the case I believe presents the best estimate of the study movement economics (see Tables 1-4). I also investigate an Alternative Case reflecting BNSF system average unit costs (see Tables 5-8).

As shown in the Verified Statement of witness Swanson, even if BNSF could find a way to reduce costs over the trackage rights, the BNSF tenant's operating disadvantages will make it impossible for them to provide service superior to UP/SP's. The ultimate result of BNSF's economic and operational disabilities will be lower volumes and an inability to compete, ultimately resulting in BNSF's exiting from the markets served over the BNSF trackage rights.

A. Analytical Model

I have analyzed the transportation economics that both UP/SP and BNSF will face for traffic in the markets affected by the BNSF trackage rights. In my evaluation, I adopted the cost analysis structure used by Applicants' principal cost investigator, Mr. Richard D. Kauders.¹⁵ Transportation services selected for analysis were restricted to those affected by the Agreement. (See Map 3.)

The comparative economics of each study movement was determined using URCS over the competing routes of movement, *i.e.*, the former UP route, the former SP route, and the BNSF route including the trackage rights granted under the Agreement. (See Tables 1 through 4.)

¹⁵ See, e.g., Exhibit 2 to Kauders' deposition, p. NO4-700004.

B. Operating Routes and Associated Service Units

BNSF's ability to compete economically will be seriously impaired because the UP/SP has retained the most competitive routes. For example, the first study of movement costs in the Cotton Belt corridor was Houston to St. Louis. (Table 1) After the merger, UP/SP and BNSF will compete for the available traffic over distinctly different routes. UP/SP will route *i* loaded trains north over the old MP route through Texarkana, Texas and Little Rock, Arkansas. Empty trains will return south over the old Cotton Belt route through Pine Bluff, Arkansas and Shreveport, Louisiana. BNSF will have to take the most circuitous route over the Cotton Belt through Brinkley, Arkansas and then veer off to Memphis to connect with its own system, incurring the costs associated with an inter-train switch.

C. Switching Requirements of Landlord and Tenant

1. <u>Reciprocal Switching:</u>

Switching is one of the largest single categories of economic difference between the cost to UP/SP and the costs to BNSF. UP/SP already has in place the fixed facilities to provide all required switching. BNSF, on the other hand, must elect either to serve customers directly or through reciprocal switching and make special arrangements to secure switching. If BNSF elects direct service, it will have to make significant capital expenditures to serve customers. For this reason, and because it is not possible from an economic perspective to evaluate capital expenditures of unknown magnitude, each study movement assumed BNSF elected reciprocal switching. My analysis relied upon the reciprocal switch charges reported in Appendix A, which reflect published tariffs.

2. Standard Switching Charges:

Standard switching costs would be incurred by each study movement enroute between origin and destination (*i.e.*, not picking up from or delivering to a customer). Switching services in this category would include (a) bad order switching to remove cars from trains for subsequent repair, (b) inter-train switching or switching cars from one train to another, and (c) intra-train switching or switching cars within the same train.

Standard switching costs would also be incurred by BNSF whenever it serves a shipper or receiver to which it already has access. The cost per standard switch would vary if the shipment used trackage rights rather than BNSF's own system. If the services were performed on trackage rights, the associated costs would be covered in joint facility agreements between the BNSF tenant and the UP/SP landlord.¹⁶

The switching charges to be paid by BNSF for switching performed by UP/SP at joint facility charge rates is not included in my cost analysis because of the difficulty of estimating the frequency of occurrence absent any current operations.¹⁷ I do, however, reflect obvious examples of additional inter- and intra-train switching that should be added to the BNSF service, but would not apply to the UP/SP service. Where an obvious extra inter-train switch is required, *i.e.*, Memphis and Denver, I added one switch occurrence to the service units required. For instance, trains flowing either north or south at Memphis on the trackage rights will meet existing BNSF trains. Since there will not be enough volume on BNSF's

¹⁶ Joint facility charges absent any joint facility agreements between BNSF and UP/SP were determined in the manner described in the Joint Facility Charges section below.

¹⁷ This is one reason my analytical model understates the costs actually to be incurred by BNSF in connection with Agreement trackage rights.

trackage rights trains to justify run-throughs, BNSF trackage rights volume will be consolidated with existing trains at Memphis. An analogous adjustment was made for trains through Denver.

3. Intra-terminal Switching Charges:

In serving customers to which BNSF has newly gained access, BNSF will incur intraterminal switching¹⁸ charges in excess of those incurred by UP/SP. It is likely that at locations new to BNSF, intra-terminal charges, in addition to reciprocal switch charges, will also apply. It is not possible to determine the extent or magnitude of all these charges until the details of the joint facility and ancillary agreements between BNSF and UP/SP are worked out, and the extent of these charges cannot be estimated without those agreements and some experience operating under those agreements. The only intraterminal switching charges I reflect are \$35.86 per car at St. Louis and at New Orleans. As a result, my costs must be understated to the extent other intra-terminal charges could not be identified.

D. Joint Facility Charges

Terminal switching and clerical costs are the types of costs that generally are included in joint facility charges. These costs can be significant, where, as here, BNSF utilizes thousands of miles of UP/SP track and will pass through hundreds of terminals, and UP/SP can charge BNSF for all related services and facilities, such as fueling, switching, clerical, and management. Although BNSF and UP/SP have agreed to use their "best efforts" to complete negotiations on the necessary joint facility agreements by June 1, 1996, that will be long after this verified statement is due at the Board. (Agreement, $\P 9(f)$, p. 334) Thus, to

¹⁸ Intra-terminal switching is a service performed in handling a car from a track served by one carrier to a track served by another carrier when both tracks are within the switching limits of the same station or industrial switching district. (ICC I&S Docket No. 4418)

estimate the charges that otherwise would be covered in such an agreement, I determined the associated system average costs for each identifiable service to be provided by UP/SP and applied the same mark-up ratio to my calculation of UP/SP's costs as UP/SP did in calculating their trackage rights charges.¹⁹ Without joint facility agreements and experience applying the Agreements, it is possible to identify only clerical costs and minor carload frelated costs, but not other costs subject to UP/SP markups. This is another reason my costs are understated.

E. Other Parameters Important to Cost Calculations

I adopted Richard Kauders 67 tons per car lading weight²⁰ and used system average tare weight per car for all car types since the traffic studied moves in a broad range of car types. Similarly, I used an empty return ratio representative of all car types to reflect realistic parameters for the trackage rights movements involved. I have used carrier specific cars per train and car utilization factors. Another conservative aspect of my cost analysis is the adoption of Richard Kauders' practice of using no circuity factor.

F. URCS Unit Costs

My BNSF URCS costs combine the separate Burlington Northern and Santa Fe costs into one set of BNSF unit costs. My UP/SP costs reflect UP expenses and traffic volume levels. Even though SP is less efficient than UP, the use of UP unit costs is conservative for a number of reasons:

¹⁹ As of February 29, 1996, the mark-up ratio of trackage rights charges to costs for the majority of the traffic over UP/SP line segments (except Keddie-Stockton/Richmond) was 177 percent. (See Deposition of Richard Kauders, p. 24) Mr. Kauders also cited errors in the URCS files used in his costing, and indicated that still further URCS costs adjustments were pending.

²⁰ See Deposition of Richard Kauders, pp. 90-93.

- UP is a far larger railroad than SP, and the weighted average of the two carriers' URCS costs therefore would be closer to UP's pre-combined costs than to SP's.
- If UP realizes merger cost savings URCS will reflect those savings in subsequent years, and the combined system's unit costs will decrease reflecting claimed economies. If all UP predictions were accurate, the combined unit costs may be lower than UP's current unit costs.
- UP does not reflect WRPI (Western Railroad Properties, Inc.) unit costs in its URCS values, even though WRPI is owned by UP and interchanges all its coal unit trains with UP. WRPI is a coal railroad with hundreds of millions of revenue dollars and related costs. Since, the unit costs related directly to moving unit trains of coal are lower than those associated with moving any other commodity, consolidation of WRPI with the rest of the corporate body would also lower UP URCS unit costs.

IV. MY ECONOMIC EVALUATION OF 26 STUDY MOVEMENTS OVER TRACKAGE RIGHTS LINE SEGMENTS

In evaluating the economics of BNSF operating over the trackage rights line segments, I selected 26 typical traffic movements over BNSF's trackage rights line segments. Map 3 (repeated on the next page) reflects the end points of the 26 segments and how they relate geographically to the trackage rights over which BNSF will newly gain access.



The study movement analyses embrace the cost impact of each of the factors impinging on costs and discussed above including the switching charge adjustments. I report my Base Case analyses (reflecting BNSF unit costs 25% higher than BNSF system average) - Tables 1-4. I report my Alternative Case analyses using unadjusted BNSF unit costs in Tables 5-8. Each of these 4 corridors is discussed in separate sections below.

The results of economic evaluations of transportation services provided over UP/SP on former SP track, UP/SP on former UP track, and BNSF operating over its trackage rights (and its own facilities where required) are reported for each study movement. "BNSF's Economic Disadvantage" is the difference between BNSF's costs and the lowest competing cost divided by the lowest competing cost.²¹ Each table then reports the economic disadvantage suffered by BNSF as it tries to compete using trackage rights in head-to-head competition against UP/SP operating over the routes from which it may select.

²¹ For any instance in which BNSF's costs were lower, and there were no instances, I would have applied the term "BNSF's Economic Advantage."

A. The Cotton Belt Corridor

The Cotton Belt Corridor is represented by 11 study movements encompassing the major markets between San Antonio and Chicago. This corridor reflects reciprocal switching requirements at each origin or destination 2-to-1 point to which BNSF has newly gained access, limited joint facility charges for services identifiable and performed using UP/SP facilities and personnel, and additional inter-train switches for movements traversing through Memphis.

My Base Case analyses reported in Table 1 reflect BNSF economic disadvantages of 64% to 157%. My Alternative Case analyses reported in Table 5 reflect BNSF economic disadvantages of 37% to 108%. I conclude that BNSF, because of the magnitude of the economic disadvantage under which it competes, will capture little, if any, traffic to which it gains access via the Agreement even though every movement is single line BNSF.

B. <u>The Central Corridor</u>

The Central Corridor is represented by 7 study movements encompassing the major markets between California's Bay Area and Chicago. This corridor reflects reciprocal switching requirements at each origin or destination 2-to-1 point to which BNSF has newly gained access, limited joint facility charges for services identifiable and performed using UP/SP facilities and personnel, and additional inter-train switches for movements traversing through Denver.

My Base Case analyses reported in Table 2 reflect BNSF economic disadvantages of 59 to 79%. My Alternative Case analyses reported in Table 6 reflect BNSF economic disadvantages of 32% to 50%. I conclude that BNSF, because of the magnitude of the

economic disadvantage under which it competes, will capture little, if any traffic to which it gains access via the Agreement even though every movement is single line BNSF.

C. The Houston to Corpus Christi and Brownsville Corridor

The Houston to Corpus Christi and Brownsville Corridor is represented by 4 study movements encompassing the major markets between Dallas-Houston and Brownsville. This corridor reflects reciprocal switching requirements at each origin or destination 2-to-1 point to which BNSF has newly gained access, limited joint facility charges for services identifiable and performed using UP/SP facilities and personnel, and no additional inter-train switches.

My Base Case analyses reported in Table 3 reflect BNSF economic disadvantages of 58% to 136%. My Alternative Case analyses reported in Table 7 reflect BNSF economic disadvantages of 31% to 98%. I conclude that BNSF, because of the magnitude of the economic disadvantage under which it competes, will capture little, if any, traffic to which it gains access via the Agreement even though every movement is single line BNSF.

D. The New Orleans to San Antonio Corridor

The New Orleans to San Antonio Corridor is represented by 4 study movements encompassing the major markets between New Orleans, LA and Eagle Pass, Texas via San Antonio, Texas. This corridor reflects reciprocal switching requirements at each origin or destination 2-to-1 point to which BNSF has newly gained access, limited joint facility charges for services identifiable and performed using UP/SP facilities and personnel, and no additional inter-train switches.

My Base Case analyses reported in Table 4 reflect BNSF economic disadvantages of 53% to 124%. My Alternative Case analyses reported in Table 8 reflect BNSF economic

disadvantages of 28% to 84%. I conclude that BNSF, because of the magnitude of the economic disadvantage under which it competes, will capture little, if any, traffic to which it gains access via the Agreement even though every movement is single line BNSF.

V. CONCLUSIONS

I conclude that BNSF's economic disadvantages will be insurmountable as it attempts to compete as a tenant with trackage rights against the UP/SP landlord. BNSF has touted the single line service it will be able to provide using these trackage rights, and it has said it is determined to make the trackage rights work. No amount of determination will permit BNSF to attain significant traffic levels in the face of BNSF <u>costs 53% to 157% higher than</u> UP/SP's.

This economic conclusion is confirmed by reality. Although not as extensive as BNSF trackage rights in this case, existing long haul trackage rights, where the tenant competes against its landlord operating over parallel track, generally achieve less than 10% market share.

Earlier, I stated that unfavorable BNSF trackage rights economics would call for adjustment to the trackage rights compensation scheme. I conclude that BNSF's economic disadvantage is so dramatic that only divestiture of the parallel duplicative line segments in the Cotton Belt, Central and New Orleans to San Antonio Corridors would permit a competitor to gain significant market share. For the Houston to Corpus Christi and Brownsville Corridor, I recommend that the markup over costs cited by Richard Kauders in his deposition of 77% be removed from the trackage rights charges of 3.1 mills per ton-mile. The new charge should be 1.75 mills per ton-mile.

VERIFICATION

Personally appeared the undersigned Joesph J. Plaistow, who under oath states that the information contained in the foregoing Verified Statement is true and correct.

Plaistow Joesph J. Plaistow

Sworn to and subscribed before me this 26^{-4} day of March, 1996.

Notary Public

My Commission Expires: Aug. 1, 1997

BASE CASE

SUMMARY OF VARIABLE COSTS RELATED TO UP/SP-BNSF AGREEMENT ADJUSTED URCS COSTS (DOLLARS PER CAR)

COTTON BELT CORRIDOR

1

STUDY					UP/SP ON		BNSF
MOVEMENT			UP/SP ON	UP/SP ON	UP TRACK LOADED	BNSF ON	ECONOMIC
NUMBER	ORIGIN	DESTINATION	SP TRACK	UP TRACK	SP TRACK EMPTY	BNSF ROUTE	DISADVANTAGE
1	HOUSTON	ST.LOUIS	\$1,006	\$1,026	\$1,021	\$1,812	80%
2	HOUSTON	CHICAGO	\$1,234	\$1,220	\$1,225	\$2,186	79%
3	HOUSTON	MEMPHIS	\$788	\$835	\$821	\$1,403	78%
4	HOUSTON	LITTLE ROCK	\$721	\$713	\$716	\$1,169	64%
5	LITTLE ROCK	DALLAS	\$709	\$630	\$654	\$1,622	157%
6	LITTLE ROCK	LAFAYETTE	\$895	\$652	\$725	\$1,221	87%
7	LITTLE ROCK	LAKE CHARLES	\$837	\$652	\$707	\$1,181	81%
8	ST.LOUIS	LITTLE ROCK	\$693	\$652	\$665	\$1,179	81%
9	BEAUMONT	LITTLE ROCK	\$787	\$700	\$726	\$1,412	102%
10	SHREVEPORT	SAN ANTONIO	\$700	\$727	\$719	\$1,426	104%
11	SAN ANTONIO	ST.LOUIS	\$1,174	\$1,207	\$1,198	\$2,142	82%

BASE CASE

SUMMARY OF VARIABLE COSTS RELATED TO UP/SP-BNSF AGREEMENT ADJUSTED URCS COSTS (DOLLARS PER CAR)

CENTRAL CORRIDOR

STUDY MOVEMENT NUMBER	ORIGIN	DESTINATION	UP/SP ON	UP/SP ON UP TRACK	BNSF ON BNSF ROUTE	BNSF ECONOMIC DISADVANTAGE
12	CHICAGO	OAKLAND	\$2,350	\$2,300	\$3,648	59%
17	CHICAGO	SALT LAKE CITY	\$1,790	\$1,554	\$2,580	66%
14	SACRAMENTO	SALT LAKE CITY	\$921	\$972	\$1,626	77%
15	SACRAMENTO	DENVER	\$1,379	\$1,431	\$2,337	69%
16	OAKLAND	SALT LAKE CITY	\$989	\$1.085	\$1,763	78%
17	RENO	SALT LAKE CITY	\$797	\$839	\$1,429	79%
18	SALT LAKE CITY	STOCKTON	\$958	\$1,011	\$1,675	75%

BASE CASE

SUMMARY OF VARIABLE COSTS RELATED TO UP/SP-BNSF AGREEMENT ADJUSTED URCS COSTS (DOLLARS PER CAR)

HOUSTON TO CORPUS CHRISTI TO BROWNSVILLE CORRIDOR

STUDY MOVEMENT NUMBER 19 H 20 E 21 S 22 (ORIGIN	DESTINATION	UP/SP ON SP TRACK	UP/SP ON UP TRACK	BNSF ON BNSF ROUTE	BNSF ECONOMIC DISADVANTAGE
19	HOUSTON	BROWNSVILLE	\$678	\$639	\$1.011	58%
20	BROWNSVILLE	DALLAS	\$772	\$820	\$1,336	73%
21	SAN ANTONIO	BROWNSVILLE	\$572	\$568	\$1,342	136%
22	CORPUS CHRISTI	DALLAS	\$656	\$709	\$1,162	77%

BASE CASE

SUMMARY OF VARIABLE COSTS FELATED TO UP/SP-BNSF AGREEMENT ADJUSTED URCS COSTS (DOLLARS PER CAR)

NEW ORLEANS TO SAN ANTONIO CORRIDOR

STUDY MOVEMENT NUMBER	ORIGIN	DESTINATION	UP/SP ON	UP/SP ON UP TRACK	BNSF ON BNSF ROUTE	BNSF ECONOMIC DISADVANTAGE
23	EAGLE PASS	NEW ORLEANS	\$934	\$997	\$1,431	53%
24	HOUSTON	SAN ANTONIO	\$509	\$566	\$1.049	106%
25	SAN ANTONIO	BEAUMONT	\$575	\$634	\$1,290	124%
26	SAN ANTONIO	DALLAS	\$602	\$591	\$1,218	106%

ALTERNATIVE CASE

SUMMARY OF VARIABLE COSTS RELATED TO UP/SP-BNSF AGREEMENT URCS COSTS (DOLLARS PER CAR)

COTTON BELT CORRIDOR

1

STUDY			UP/SP ON	UP/SP ON	UP/SP ON UP TRACK LOADED	BNSFON	BNSF
NUMBER	ORIGIN	DESTINATION	SPTRACK	UPTRACK	SP TRACK EMPTY	BNSF ROUTE	DISADVANTAGE
1	HOUSTON	STLOUIS	\$1,006	\$1,026	\$1,021	\$1,496	49%
2	HOUSTON	CHICAGO	\$1,234	\$1,220	\$1,225	\$1,795	47%
3	HOUSTON	MEMPHIS	\$788	\$835	\$821	\$1,169	48%
4	HOUSTON	LITTLE ROCK	\$721	\$713	\$716	\$974	37%
5	LITTLE ROCK	DALLAS	\$709	\$630	\$654	\$1,312	108%
6	LITTLE ROCK	LAFAYETTE	\$895	\$652	\$725	\$1,029	58%
7	LITTLE ROCK	LAKE CHARLES	\$837	\$652	\$707	\$996	53%
8	ST.LOUIS	LITTLE ROCK	\$693	\$652	\$665	\$958	47%
9	BEAUMONT	LITTLE ROCK	\$787	\$700	\$726	\$1,175	68%
10	SHREVEPORT	SAN ANTONIO	\$700	\$727	\$719	\$1,181	69%
11	SAN ANTONIO	ST.LOUIS	\$1,174	\$1,207	\$1,198	\$1,780	52%

ALTERNATIVE CASE

SUMMARY OF VARIABLE COSTS RELATED TO UP/SP-BNSF AGREEMENT URCS COSTS (DOLLARS PER CAR)

CENTRAL CORRIDOR

STUDY MOVEMENT NUMBER	ORIGIN	DESTINATION	UP/SP ON	UP/SP ON UP TRACK	BNSF ON BNSF ROUTE	BNSF ECONOMIC DISADVANTAGE
12	CHICAGO	OAKLAND	\$2,350	\$2,300	\$3,031	32%
13	CHICAGO	SALT LAKE CITY	\$1,790	\$1,554	\$2,111	36%
14	SACRAMENTO	SALT LAKE CITY	\$921	\$972	\$1,362	48%
15	SACRAMENTO	DENVER	\$1,379	\$1,431	\$1,978	43%
16	OAKLAND	SALT LAKE CITY	\$989	\$1,085	\$1,476	49%
17	RENO	SALT LAKE CITY	\$797	\$839	\$1,191	50%
18	SALT LAKE CITY	STOCKTON	\$958	\$1,011	\$1,405	47%

ALTERNATIVE CASE

SUMMARY OF VARIABLE COSTS RELATED TO UP/SP-BNSF AGREEMENT URCS COSTS (DOLLARS PER CAR)

:

HOUSTON TO CORPUS CHRISTI TO BROWNSVILLE CORRIDOR

STUDY MOVEMENT NUMBER	ORIGIN	DESTINATION	UP/SP ON SP TRACK	UP/SP ON UP TRACK	BNSF ON BNSF ROUTE	BNSIT ECONOMIC DISADVANTAGE
19	HOUSTON	BROWNSVILLE	\$678	\$639	\$837	31%
20	BROWNSVILLE	DALLAS	\$772	\$820	\$1,097	42%
21	SAN ANTONIO	BROWNSVILLE	\$572	\$568	\$1,122	98%
22	CORPUS CHRISTI	DALLAS	\$656	\$709	\$947	44%

ALTERNATIVE CASE

SUMMARY OF VARIABLE COSTS RELATED TO UP/SP-ENSF AGREEMENT URCS COSTS (DOLLARS PER CAR)

1

NEW ORLEANS TO SAN ANTONIO CORRIDOR

STUDY MOVEMENT NUMBER	ORIGIN	DESTINATION	UP/SP ON SP TRACK	UP/SP ON UP TRACK	BNSF ON BNSF ROUTE	BNSF ECONOMIC DISADVANTAGE
23	EAGLE PASS	NEW ORLEANS	\$934	\$997	\$1,191	28%
24	HOUSTON	SAN ANTONIO	\$509	\$566	\$859	69%
25	SAN ANTONIO	BEAUMONT	\$575	\$634	\$1.059	84%
26	SAN ANTONIO	DALLAS	\$602	\$591	\$994	68%

APPENDIX A

STUDY OF RECIPROCAL SWITCHING IN SIX STATES

Finance Docket No. 30700

STATE CITY ROAD CUSTOM COMMODITY TARIFF ITEM(S) ATSF BN KCS MP SPTC O ARKANSAS GENERAL BN GRAIN MP 8170-C 135 560.00 \$130.00 \$130.00 \$130.00 \$130.00 \$100.00 \$112.00 \$100.00 \$112.00 \$112.00 \$112.00 \$112.00 \$112.00 \$112.00 \$112.00 \$112.00 \$112.00 \$112.00 \$112.00 \$112.00 \$112.00 \$112.00 <		MAX. RECIPROCAL SW CHARGES PER CAR BY CARRIER											
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FT SMITH AM KCS 8100-A 280 \$200.00 \$200.00 FT SMITH FSR ALL MP 8170-C 500-B \$200.00 \$191.00 FT SMITH MP KCS 8100-A 280 \$200.00 \$191.00 \$191.00 GENERAL ADN ALL MP 8170-C 500-B \$200.00 \$113.00 \$113.00 GENERAL BN MP 8170-C 500-B \$200.00 \$113.00 \$83.00 \$210.00 \$113.00 GENERAL BN MP 8170-C 500-B \$220.00 \$113.00 \$83.00 \$210.00 \$113.00 GENERAL SP MP 8170-C 500-B \$220.00 \$113.00 \$221.00 \$113.00 \$221.00 <td></td> <td>EL DORADO</td> <td>SCAR</td> <td></td> <td>ALL</td> <td>MP 8170-C</td> <td>760</td> <td></td> <td></td> <td></td> <td>\$112.00</td> <td></td> <td></td>		EL DORADO	SCAR		ALL	MP 8170-C	760				\$112.00		
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GENERAL MDR MP MP 8170-C 500-B \$115.00 \$83.00 <td></td> <td>GENERAL</td> <td>KCS</td> <td></td> <td></td> <td>MP 8170-C</td> <td>500-B</td> <td></td> <td></td> <td></td> <td>\$210.00</td> <td></td> <td></td>		GENERAL	KCS			MP 8170-C	500-B				\$210.00		
GENERAL GENERAL SP MP 8170-C 500-B MP 8170-C 500-B \$83.00 <t< td=""><td> </td><td>GENERAL</td><td>MDR</td><td></td><td></td><td>MP 8170-C</td><td>500-B</td><td></td><td></td><td></td><td>\$115.00</td><td></td><td></td></t<>		GENERAL	MDR			MP 8170-C	500-B				\$115.00		
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JONESBORO SSW ALL BN 8005-D 3320 \$495.00 \$62.00 LITTLE ROCK LRP LUMBER SP 9500-D 7090 \$5220.00 \$62.00 \$60.00 \$60.00 \$60.00 \$60.00 \$60.00 \$60.00 \$60.00 \$139.00 \$139.00 \$139.00 \$135.00 \$135.00 \$66.00 \$66	1	HOPE	ALL		ALL	MP 8170-C	510-A				\$231.00		
LITTLE ROCK TEXARKANALRP MPLUMBERSP 9500-D KCS 8100-A7090 400\$220.00\$62.00TEXARKANAMP TEXARKANASP VAN BURENOTHER ALLOTHER O/B S&GRAVMP 8170-C S15-D515-D\$231.00\$231.00VAN BURENALL VAN BURENO/B S&GRAV MP 8170-CMP 8170-C S15-E515-E\$231.00\$231.00VAN BURENALL VAN BURENO/B S&GRAV MP 8170-CMP 8170-C S15-E\$15-E\$139.00\$139.00VAN BURENALL VAN BURENO/B BEANS AM AG PROCMP 8170-C MP 8170-C\$15-D\$135.00\$135.00VAN BURENAM AG PROCO/B BEANS ANDMP 8170-C MP 8170-C\$15-D\$86.00\$86.00VAN BURENAM ARKHOLA SANDMP 8170-C MP 8170-C\$15-D\$86.00\$86.00	1	JONESBORO	SSW		ALL	BN 8005-D	3320		\$495.00				
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VAN BUREN VAN BUREN VAN BURENALLOTHER O/B S&GRAVMP 8170-C515-D\$231.00VAN BUREN VAN BUREN VAN BURENALLO/B S&GRAV O/B S&GRAVMP 8170-C515-E\$96.00VAN BUREN VAN BUREN VAN BUREN AM AM AG PROC VAN BURENO/B BEANS 	[TEXACKANA	SP			KCS 8100-A	400			\$495.00			
VAN BUREN ALL O/B S&GRAV MP 8170-C 515-E \$96.00 VAN BUREN ALL O/B S&GRAV MP 8170-C 515-E \$139.00 VAN BUREN ALL O/B S&GRAV MP 8170-C 515-E \$139.00 VAN BUREN ALL WHEAT MP 8170-C 515-D \$135.00 VAN BUREN AM AG PROC O/B BEANS MP 8170-C 515-D \$186.00 VAN BUREN AM ARKHOLA SAND MP 8170-C 515-D \$86.00		VAN BUREN	ALL		OTHER	MP 8170-C	515-D			\$155.00	\$231.00		
VAN BUREN ALL O/B S&GRAV MP 8170-C 515-E \$139.00 VAN BUREN ALL WHEAT MP 8170-C 515-D \$135.00 VAN BUREN AM AG PROC O/B BEANS MP 8170-C 515-D \$135.00 VAN BUREN AM AG PROC O/B BEANS MP 8170-C 515-D \$86.00 VAN BUREN AM ARKHOLA SAND MP 8170-C 515-D \$86.00		VAN BUREN	ALL		O/B S&GRAV	MP 8170-C	515-E				\$06.00		
VAN BUREN VAN BURENALL AM AM AM AM ARKHOLA SANDWHEAT MP 8170-C MP 8170-C 515-DMP 8170-C 515-D\$135.00 \$135.00VAN BUREN VAN BURENAM ARKHOLA SANDMP 8170-C MP 8170-C 515-D515-D\$86.00 \$86.00		VAN BUREN	ALL		O/B S&GRAV	MP 8170-C	515-E				\$139.00		
VAN BURENAMAG PROCO/B BEANSMP 8170-C515-D\$86.00VAN BURENAMARKHOLA SANDMP 8170-C515-D\$86.00		VAN BUREN	ALL		WHEAT	MP 8170-C	515-D				\$135.00		
VAN BUREN AM ARKHOLA SAND MP 8170-C 515-D \$86.00		VAN BUREN	AM	AG PROC	O/B BEANS	MP 8170-C	515-D				\$86.00		
	1	VAN BUREN	AM	ARKHOLA	SAND	MP 8170-C	515-0				\$86.00		
							0100				\$00.00		
													1

App. A-1

APPENDIX A

lease and the second			DESCRIPTION	Finds, St	DOCKOLINO. CO.	and the second	MAX. REC	IPROCAL	SW CHAR	GES PER C	AR BY CAP	RIER
STATE	CITY	ROAD	CUSTOMER	COMMODITY	TARIFE	ITEM(S)	ATSF	BN	KCS	MP	SPTC	ALL
KANSAS	IWICHITA	TBN	Construction of the local division of the local division of the	ALL	MP 8170-C	860-E				\$109.00		
i nanono	WICHITA	BN		ALL	BN 8005-D	6250		\$382.00				
-	WICHITA	KSW	WEYERHAUSER	ALL	SP9500-D	7395					\$175.00	
	WICHITA	MP		ALL	BN 8005-D	6240		\$130.00				
	WINFIELD	ATSE		ALL	MP 8170-C	560-B				\$83.00		
	WINFIELD	BN		ALL	MP 8170-C	560-B				\$83.00		
	WINFIELD	KCS		ALL	MP 8170-C	560-B				\$139.00		
	WINEIELD	MDR		ALL	MP 8170-C	560-B				\$112 00		
	WINEIELD	SP		ALL	MP 8170-C	560-B				\$145.00		
1	WINFIELD	SSW		ALL	MP 8170-C	560-B				\$145.00		
	WINEIELD	UP		ALL	MP 8170-C	560-B				\$139.00		

STUDY OF RECIPROCAL SWITCHING IN SIX STATES

App. A-2

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APPENDIX A

STUDY OF RECIPROCAL SWITCHING IN SIX STATES

Finance Docket No. 30700

			DESCRIPTION						MAX. RECIPROCAL SW CHARGES PER				
STATE	CITY	ROAD	CUSTOMER	COMMODITY	TARIFF	ITEM(S)	ATSF	BN	KCS	MP	SPTC	ALL	
KANSAS	LEVENWORTH	BN		GRAIN	ATSF 8001-E	1280	\$35.00			Î			
-	LEVENWORTH	BN		NON-GRAIN	ATSF 8001-E	1280	\$113.00						
	LYONS	BN		GRAIN	ATS7 8001-E	1325-133	\$105.00						
	LYONS	BN		GRAIN	ATSF 8001-E	1325-133	\$77.00						
	MC PHERSON	MP		GRAIN, CHEM	ATSF 8001-E	1335-134	\$77.00						
	MC PHERSON	UP		GRAIN, CHEM	ATSF 8001-E	1335-134	\$133.00						
	MCPHERSON	CKRY	CARGILL-NUTRENA	ALL	SP9500-D	7390					\$175.00		
	NEWTON	MP		ALL	ATSF 8001-E	1385-141	\$77.00						
	NICKERSON	MP		ALL	ATSF 8001-E	1420	\$77.00						
	NORTON	KYLE		ALL	BN 8005-D	4640		\$140.00					
	OLATHE	BN		ALL	ATSF 8001-E	1780	\$105.00						
	PITTSBURG	ATSF		ALL	MP 8170-C	555-A				\$77.00			
	PITTSBURG	BN		ALL	MP 8170-C	555-A				\$83.00			
	PITTSBURG	KCS	1	ALL	MP 8170-C	555-A				\$191.00			
	PITTSBURG	SEKR		ALL	BN 8005-D	4830		\$200.00					
	SALINA	MP		GRAIN	ATSF 8001-E	2005-202	\$148.00						
	SALINA	UP		GRAIN	ATSF 8001-E	2005-202	\$148.00						
-	SCOTT CITY	MP		GRAIN, CHEM	ATSF 8001-E	2060	\$77.00						
	SCOTT CITY	MP		GRAIN, CHEM	ATSF 8001-E	2030	\$77.00						
	TOPEKA	ATSF		ALL	MP 8170-C	560-B				\$83.00			
	TOPEKA	BN	1	ALL	MP 8170-C	560-B				\$83.00			
	TOPEKA	KCS			ATSF 8001-E	2100-218							
	TOPEKA	KCS		ALL	MP 8170-C	560-B				\$139.00			
	TOPEKA	MDR		ALL	MP 8170-C	560-B	/			\$118.00			
	TOPEKA	MP		GRAIN	ATSF 8001-E	2100-218	\$139.00						
	TOPEKA	MP(MK			ATSF 8001-E	2100-218							
	TOPEKA	SP		ALL	MP 8170-C	560-B				\$145.00			
	TOPEKA	SSW		ALL	MP 8170-C	560-B				\$145.00			
	TOPEKA	UP			ATSF 8001-E	2100-218	\$146.00						
	TOPEKA	UP		ALL	MP 8170-C	560-B				\$139.00			
	WELLINGTON	MP(OK		GRAIN	ATSF 8001-E	2260-228	\$163.00						
	WICHITA	ATSF		ALL	BN 8005-D	6240		\$130.00					
	WICHITA	ATSF		NON-GRAIN	MP 8170-C	860-E				\$148.00			
	WICHITA	ATSF	GARVEY	GRAIN	MP 8170-C	860-E				\$75.00			
STUDY OF RECIPROCAL SWITCHING IN SIX STATES

Finance Docket No. 30700

		DESCRIPTION		MAX. RECIPROCAL SW CHARGES PER CAR BY CARI					RRIER			
												ALL
STATE	CITY	ROAD	CUSTOMER	COMMODITY	TARIFF	ITEM(S)	ATSF	BN	KCS	MP	SPIC	OTHER
KANSAS	ATCHISON	BN		NON-GRAIN	MP 8170-C	530-B				\$118.00		
	ATCHISON	KCS		GRAIN	MP 8170-C	530-B				\$102.00		
	ATCHISON	KCS		GRAIN	ATSF 8001-E	495	\$74.00					
	ATCHISON	KCS		NON-GRAIN	MP 8170-C	530-B				\$146.00		
	ATCHISON	KCS	MACZUK INDUSTRIES	ALL	BN 8005-D	1380		\$151.00				
	ATCHISON	MDR		GRAIN	MP 8170-C	530-B				\$102.00		
	ATCHISON	MDR		NON-GRAIN	MP 8170-C	530-B				\$121.00		
	ATCHISON	MP		GRAIN	ATSF 8001-E	495	\$98.00					
	ATCHISON	MP	MACZUK INDUSTRIES	ALL	BN 8005-D	1380		\$151.00				
	ATCHISON	MP(MK		GRAIN	ATSF 8001-E	495	\$74.00					
	BELLE PLAIN	ATSF		ALL	MP 8170-C	535-A				\$77.00		
	BELLE PLAIN	UP		ALL	MP 8170-C	535-A				\$139.00		
	CHANUTE	MP(MK		CHEM	ATSF 8001-E	570-580	\$141.00					
	COFFEYVILLE	ATSF		ALL	MP 8170-C	540-B				\$146.00		
	COFFEYVILLE	MP		GRAIN, CHEM	ATSF 8001-E	610-620	\$77.00					
	COFFEYVILLE	MP(MK		GRAIN, CHEM	ATSF 8001-E	610-620	\$198.00					
	CONCORDIA	MP		GRAIN	ATSF 8001-E	610-620	\$77.00					
	CONCORDIA	UP		GRAIN	ATSF 8001-E	610-620	\$122.00					
	COURTLAND	KYLE		GRAIN	ATSF 8001-E	700	\$124.00					
	EL DORADO	MP		CHEM	ATSF 8001-E	1055-106	\$77.00					
	FREDONIA	BN		GRAIN	ATSF 8001-E	1130	\$105.00					
	FREDONIA	MP		ALL	BN 8005-D	2960		\$150.00				
	FREDONIA	MP		GRAIN	ATSF 8001-E	1130	\$77.00					
	FREDUNIA	SKOL		ALL	BN 8005-0	2960		\$150.00				
	GARDEN CITY	GCW		GRAIN	ATSF 8001-E	1157	\$141.00					
	HUTCHINSON	HN		ALL	SP9500-D	6150					\$148.00	
	HUTCHINSON	MP		GRAIN	ATSF 8001-E	1150-119	\$77.00					
	KANOPOLIS	UP		ALL	MP 8170-C	535				\$129.00		
	LEAVENWORTH	ATSF		GRAIN	MP 8170-C	545-A				\$102.00		
	LEAVENWORTH	ATSF		NON-GRAIN	MP 8170-C	545-A				\$118.00		Î
	LEAVENWORTH	BN		GRAIN	MP 8170-C	545-A				\$102.00		
	LEAVENWORTH	BN		NON-GRAIN	MP 8170-C	545-A				\$119.00		
	LEAVENWORTH	CNW		GRAIN	MP 8170-C	545-A				\$102.00		
	LEAVENWORTH	CNW		NON-GRAIN	MP 8170-C	545-A				\$101.00		

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STUDY OF RECIPROCAL SWITCHING IN SIX STATES

Finance Docket No. 30700

			DESCRIPTION		MAX. REC	IPROCAL S	SW CHAR	GES PER C	AR BY CAP	RIER		
				1								ALL
STATE	CITY	ROAD	CUSTOMER	COMMODITY	TARIFF	ITEM(S)	ATSF	BN	KCS	MP	SPTC	OTHER
			and the support of the second states of the second states and the second states	0								
KANSAS	GENERAL	ATSF		GRAIN	SP9500-D	6040					\$100.00	
	GENERAL	ATSF		NON-GRAIN	MP 8170-C	122-A				\$100.00		
	GENERAL	ATSF		NON-GRAIN	MP 8170-C	122-A				\$100.00		
	GENERAL	BN		GRAIN	MP 8170-C	135				\$60.00		
	GENERAL	BN		GRAIN	ATSF 8001-E	355	\$100.00					
	GENERAL	BN		NON-GRAIN	MP 8170-C	140				\$130.00		
	GENERAL	BN		NON-GRAIN	ATSF 8001-E	355	\$106.00					
	GENERAL	HN			ATSF 8001-E	355	\$62.00					
	GENERAL	KCS			ATSF 8001-E	355	\$133.00					
	GENERAL	KSW			ATSF 8001-E	355	\$69.00					
	GENERAL	MP			ATSF 8001-E	355	\$69.00					
	GENERAL	MP		GRAIN	ATSF 8001-E	116	\$60.00				\$0.00	1
	GENERAL	MP		GRAIN	SP9500-D	6050					\$100.00	
	GENERAL	MP	\sim	NON GRAIN	BN 8005-D	290		\$130.00				
	GENERAL	SP		GRAIN	MP 8170-C	125-D				\$495.00		
	GENERAL	SP		GRAIN	ATSF 8001-E	366	\$495.00					
	GENERAL	SSW		GRAIN	ATSF 8001-E	366	\$495.00					
1	GENERAL	SSW		GRAIN	MP 8170-C	125-D				\$495.00		
	GENERAL	UP		GRAIN	SP9500-D	6050					\$100.00	
	GENERAL	UP		GRAIN	ATSF 8001-E	355	\$114.00					
	GENERAL	UP		GRAIN	ATSF 8001-E	116	\$60.00					
	GENERAL	UP		NON-GRAIN	ATSF 8001-E	355	\$133.00					
	GENERAL	UP		NON-GRAIN	BN 8005-D	290	1	\$130.00				
	ABILENE	MP		GRAIN, CHEM	ATSF 8001-E	370	\$148.00					
	ABILENE	UP		GRAIN, CHEM	ATSF 8001-E	370	\$133.00					
	ANTHONY	MP		GRAIN	ATSF 8001-E	410	\$77.00					
	ARKANSAS CITY	BN		GRAIN	ATSF 8001-E	485	\$105.00					
	ARKANSAS CITY	MP		GRAIN	ATSF 8001-E	485	\$77.00					
	ATCHISON	ATSF		GRAIN	MP 8170-C	530-B				\$102.00		
	ATCHISON	ATSF		NON-GRAIN	MP 8170-C	530-B				\$79.00		
	ATCHISON	ATSF	MACZUK INDUSTRIES	ALL	BN 8005-D	1380		\$151.00				
	ATCHISON	BN		GRAIN	ATSF 8001-E	495	\$74.00					
	ATCHISON	BN		GRAIN	MP 8170-C	530-B				\$102.00		

App. A-5

- 207 -

STUDY OF RECIPROCAL SWITCHING IN SIX STATES

Finance Docket No. 30700

J	DESCRIPTION						MAX. RECIPROCAL SW CHARGES PER CAR BY CARRIER					
STATE	СІТҮ	ROAD	CUSTOMER	COMMODITY	TARIFF	ITEM(S)	ATSF	BN	ксѕ	MP	SPTC	ALL
LOUISIANA												
	GENERAL	ATSF		GRAIN	SP9500-D	6040					\$100.00	
	GENERAL	ATSF		NON-GRAIN	MP 8170-C	122-A				\$100.00		
	GENERAL	BN		GRAIN	MP 8170-C	135				\$60.00		
	GENERAL	BN		NON-GRAIN	MP 8170-C	140				\$130.00		-
	GENERAL	MP		GRAIN	SP9500-D	6050					\$100.00	
	GENERAL	MP		GRAIN	ATSF 8005-E	111	\$60.00					
	GENERAL	SP			ATSF 8005-E	216	\$495.00					
	GENERAL	SP		GRAIN	ATSF 8005-E	836	\$450.00					
	GENERAL	SP		GRAIN	MP 8170-C	125-D				\$495.00		
	GENE	SSW			ATSF 8005-E	216	\$495.00	\$0.00				
	GENL	SSW		GRAIN	ATSF 8005 E	836	\$450.00					
	GENERAL	SSW		GRAIN	MP 8170-C	125-D				\$495.00		
	GENERAL	UP		GRAIN	SP9500-D	6050					\$100.00	
	GENERAL	MP			ATSF 8005-E	114	\$100.00					
	ALEXANDRIA	KCS		ALL	MP 8170-C	575-A				\$244.00		
	ALEXANDRIA	MDR		ALL	MP 8170-0	575-A				\$191.00		
	ALEXANDRIA	MP		ALL	KCS 8100-A	210			\$320.00			
	ALEXANDRIA	SP		ALL	MP 8170-C	575-A				\$138.00		
	ALEXANDRIA	SSW		ALL	MP 8170-C	575-A				\$138.00		
	AVONDALE	IC		ALL	SP9500-D	6180					\$390 00	
	AVONDALE	NON-IC		ALL	SP9500-D	6180					\$358.00	
	BALWDIN	LORR		LA INTRAST	SP9500-D	7400					\$145.00	
	BASTROP	IC		ALL	MP 8170-C	580				\$205.00		
	BASTROP	MSRC		ALL	MP 8170-C	580				\$128.00		
	BATON ROUGE	IC		ALL	KCS 8100-A	220			\$625.00			
	BATON ROUGE	MP		ALL	KCS 8100-A	220			\$625.00			
	BAYOU SALE	LORR		LA INTRAST	SP9500-D	7410					\$145.00	
	CROWLEY	AKDN		LA INTRAST	SP9500-D	7420					\$206.00	
	DE RIDDER	ATSF		ALL	KCS 8100-A	270			\$220.00			
	DE RIDDER	KCS			ATSF 8005-E	360	\$189.00					
	LAKE CHARLES	ATSF		ALL	MP 8170-C	570-B				\$72.00		
	LAKE CHARLES	KCS		ALL	MP 8170-C	570-B				\$191.00	1	

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STUDY OF RECIPROCAL SWITCHING IN SIX STATES

Finance Docket No. 30700

	DESCRIPTION							IPROCAL	SW CHARC	SI'S PER C	AR BY CAR	RRIER
STATE	CITY	ROAD	CUSTOMER	COMMODITY	TARIFF	ITEM(S)	ATSF	BN	ксѕ	мр	SPTC	ALL
LOUISIANA	L ILAKE CHARLES	IMP T	The local second second second	I IALL	KCS 8100-A	320			\$342.00			
	LAKE CHARLES	SP		ALL	KCS 8100-A	270			\$495.00			
	LAKE CHARLES	SP		ALL	MP 8170-C	570-B				\$78.00		
	LAKE CHARLES	SSW		ALL	MP 8170-C	570-B				\$78.00		
	MONROE	ALM		ALL	KCS 8100-A	340			\$189.00			
	MONROE	DSSR		ALL	KCS 8100-A	340			\$189.00			
	MONROE	IC		ALL	MP 8170-C	580				\$205.00		
	MONROE	MP		ALL	KCS 8100-A	340			\$189.00			
	MONROE	MSRC		ALL	MP 8170-C	580				\$128.00		
	NEW IBERIA	LDRR		LA INTRAST	SP9500-P	7430					\$145.00	
	NEW ORLEANS	CSXT		ALL	KCS 8100-A	360			\$248.00			
	NEW ORLEANS	IC		ALL	KCS 8100-A	360			\$296.00			
	NEW ORLEANS	IC		ALL	SP9500-D	6190				-	\$390.00	
	NEW ORLEANS	MP		ALL	KCS 8100-A	360			\$248.00			
	NEW ORLEANS	NON-IC		ALL	SP9500-D	6190					\$358.00	
	NEW ORLEANS	NOPB		ALL	SP9500-D	7440					\$200.00	
	NEW ORLEANS	NS		ALL	KCS 8100-A	360			\$248.00			
	NEW ORLEANS	SP		ALL	KCS 8100-A	360			\$495.00			
	OAKDALE	ATSF		ALL	MP 8170-C	570				\$66.00		
	OAKDALE	KCS		ALL	MP 8:70-C	570				\$177.00		
	OAKDALE	SP		ALL	MP 8170-C	570				\$72.00		
	OAKDALE	SSW		ALL	MP 8170-C	570				\$72.00		
	SCHRIEVER	LDRR		LA INTRAST	SP9500-D	7450					\$145.00	
	SHREVEPORT	KCS		ALL	MP 8170-C	590				\$192.00		
	SHREVEPORT	MP		ALL	KCS 8100-A	380			\$220.00			
	SHREVEPORT	MSRC		ALL	MP 8170-C	590				\$189.00		
	SHREVEPORT	SP		ALL	KCS 8100-A	380			\$495.00			
	SHREVEPORT	SSW		ALL	KCS 8100-A	380			\$220.00			
	TEXARKANA	MP		ALL	KCS 8100-A	400			\$220.00			
									\$495.00		- /	Y.

App. A-7

1.5- A.



STUDY OF RECIPROCAL SWITCHING IN SIX STATES Finance Docket No. 30700

DESCRIPTION								MAX. RECIPROCAL SW CHARGES PER CAR BY CARRIER						
STATE	СІТҮ	RCAD	CUSTOMER	COMMODITY	TARIFF	ITEM(S)	ATSF	BN	KCS	MP	SPTC	ALL		
MISSISSIPPI	ABERDEEN	BN		ALL	KCS 8100-A	135			\$180.00					
	ABERDEEN	KCS		ALL	BN 8005-D	1240		\$157.00	1					
	CORINTH	NS		ALL	KCS 8100-A	250			\$275.00					
	CORINTH	RRC		ALL	KCS 8100-A	250			\$275.00					
	GULFPORT	CSXT		ALL	KCS 8100-A	290			\$313.00					
	MERIDIAN	MBRR		ALL	KCS 8100-A	330			\$175.00					
	MERIDIAN	NS		ALL.	KCS 8100-A	330			\$175.00	6				
	TUPELO	BN		ALL	KCS 9100-A	410			\$185.00					
	TUPELO	KCS		ALL	BN 8005-D	5900		\$157.00			1			

- 210 -

App. A-8

STUDY OF RECIPROCAL SWITCHING IN SIX STATES

Finance Docket No. 30700

			DESCRIPTION		MAX. REC	IFROCAL	SW CHARG	GES PER C	AR BY CAP	RIER		
STATE	CITY	ROAD	CUSTOMER	COMMODITY	TARIFF	ITEM(S)	ATSF	BN	KCS	мр	SPTC	ALL
MICCOURT	CENEDAL	1.705			CDOFOO D				3			
MISSOURI	GENERAL	AISF		GRAIN	5P9500-D	6040					\$100.00	
	GENERAL	AISF		NON-GHAIN	MP 8170-C	122-A				\$100.00		
	GENERAL	BN		GRAIN	MP 8170-C	135				\$60.00		
	GENERAL	BN	ISVOSOT IL OUTIO	NON-GHAIN	MP 8170-C	140				\$130.00		
	GENEHAL	BN	(EXCEPT K. CITY)	GHAIN	ATSF 8001-E	355	\$89.00					
	GENERAL	BN	(EXCEPT K. CITY)	NON-GRAIN	ATSF 8001-E	355	\$100.00					
	GENERAL	MP		GRAIN	SP9500-D	6050					\$100.00	
	GENERAL	MP		NON GRAIN	BN 8005-D	290		\$130.00				
	GENERAL	MP	(EXCEPT K. CITY)	ALL	ATSF 8001-E	355	\$68.00					
	GENERAL	SP		GRAIN	ATSF 8001-E	366	\$495.00					
	GENERAL	SP		GRAIN	MP 8170-C	125-D				\$495.00		
	GENERAL	SSW		GRAIN	ATSF 8001-E	366	\$495.00					
	GENERAL	SSW		GRAIN	MP 8170-C	125-D				\$495.00		
	GENERAL	UP		GRAIN	SP9500-D	6050					\$100.00	
	GENERAL	UP		NON-GRAIN	BN 8005-D	290		\$130.00				
	CAPE GIRARDEAU	MP	PROCTOR & GAMBLE	ALL	BN 8005-D	1730		\$293.00				
	CAPE GIRARDEAU	SE	PROCTOR & GAMBLE	ALL	BN 8005-D	1730		\$293.00				
	CAPEDEAU JCT	SE		ALL	SP9500-D	746C					\$250.00	
	CARTHAGE	MNA		ALL	BN 8005-D	1750		\$130.00				
	CARTHAGE	MP		ALL	BN 8005-D	1750		\$213.00				
	JOPLIN	BN		ALL	KCS 8100-A	300			\$252.00			
	JOPLIN	BN		ALL	MP 8170-C	610-A				\$83.00		
	JOPLIN	KCS		ALL	MP 8170-C	610-A				\$191.00		
	JOPLIN	MNA		ALL	KCS 8100-A	300			\$252.00		1	
	JOPLIN	MP		ALL	KCS 8100-A	300			\$252.00			
	LA PLATTA	NS		ALL	ATSF 8001-E	1275	\$84.00			0		
	LAMAR	MNA		ALL	BN 8005-D	4120		\$200.00				
	LAMAR	MP		ALL	BN 8005-D	5100		\$94.00				
	MARSHALL	GWWR		ALL	MP 8170-C	600-E				\$213.00		
	NEOSHO	BN		ALL	KCS 8100-A	350			\$220.00			
	SPRINGFIELD	BN		ALL	MP 8170-C	595-A				\$144.00		
	SPRINGFIELD	MNA		ALL	BN 8005-D	5640		\$133.00				1
	SPRINGFIELD	MP		ALL	BN 8005-D	5640		\$133.00				

App. A-9

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STUDY OF RECIPROCAL SWITCHING IN SIX STATES

Finance Docket Nc. 30700

and the state of the second	DESCRIPTION								MAX. RECIPROCAL SW CHARGES PER CAR BY CARRIER				
STATE	CITY	ROAD	CUSTOMER	COMMODITY	TARIFF	ITEM(S)	ATSF	BN	KCS	MP	SPTC	ALL	
MISSOLIBI	ST.IOSEPH	ATSE		GRAIN	BN 8005-D	5100		\$94.00					
MISSOOM	ST JOSEPH	ATSF		GPAIN	MP 8170-C	618-A				\$120.00			
	ST JOSEPH	ATSE		NON-GRAIN	BN 8005-D	5100		\$180.00					
	ST JOSEPH	ATSE		NON-GRAIN	MP 8170-C	618-A				\$150.00			
	ST JOSEPH	BN		GRAIN	MP 8170-C	618-A				\$120.00			
	ST JOSEPH	BN		GRAIN	ATSF 8001-E	2076-207	\$98.00						
	ST JOSEPH	BN		NON-GRAIN	ATSF 8001-E	2076-207	\$187.00						
	ST JOSEPH	BN		NON-GRAIN	MP 8170-C	618-A				\$150.00			
	ST JOSEPH	CNW		GRAIN	BN 8005-D	5100		\$94.00					
	ST JOSEPH	CNW		GRAIN	ATSF 8001-E	2076-207	\$30.00						
	ST JOSEPH	CNW		NON-GRAIN	BN 8005-D	5100		\$180.00					
	ST JOSEPH	CNW		NON-GRAIN	ATSF 8001-E	2076-207	\$ 35.00						
	ST JOSEPH	MP		GRAIN	ATSF 8001-E	2076-207	\$98.00						
	ST JOSEPH	MP		GRAIN	BN 8005-D	5100		\$94.00					
	ST JOSEPH	MP		NON-GRAIN	ATSF 8001-E	2076-207	\$98.00						
	ST JOSEPH	MP		NON-GRAIN	BN 8005-D	5100		\$180.00					
	ST JOSEPH	UP		GRAIN	BN 8005-D	5100		\$94.00		1 1			
	ST JOSEPH	UP		GRAIN	ATSF 8001-E	2078-207	\$45.00						
	ST JOSEPH	UP		NON-GRAIN	ATSF 8001-E	2076-207	\$126.00						
	ST JOSEPH	UP		NON-GRAIN	BN 8005-D	5100		\$180.00					
	ST LOUIS	ALL		ALL	BN 8005-D	5190		\$225.00					
	ST LOUIS	ALL	ELEVATOR 'A'	GRAIN	BN 8005-D	5220		\$110.00		1			
	STLOUIS	BN		ALL	MP 8170-C	832-D				\$188.00			
	ST LOUIS	BSDR		ALL	BN 8005-D	8230	-	\$250.00					
	STLOUIS	CR		ALL	MP 8170-C	832-D				\$385.00			
	ST LOUIS	CR		ALL	BN 8005-D	5190		\$364.00					
	ST LOUIS	CR	ELEVATOR 'A'	GRAIN	BN 8005-D	5220		\$364.00					
	STLOUIS	CSXT		ALL	BN 8005-0	5190		\$150.00					
	ST LOUIS	CSXT		ALL	MP 8170-C	832-0				\$104.00			
	STLOUIS	CSXT	ELEVATOR 'A'	GRAIN	BN 8035-D	5220		\$150.00					
	STLOUIS	GWWR		ALL	MP 8170-C	832-D				\$235.00			
	ST LOUIS	IC	4	ALL	MP 8170-C	832-D				\$275.00			
	ST LOUIS	MP	ELEVATOR 'A'	GRAIN	BN 8005-D	5220		\$66.00		11			

App. A-10

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STUDY OF RECIPROCAL SWITCHING IN SIX STATES

DESCRIPTION MAX. RECIPROCAL SW CHARGES PER CAR BY CARRIER											RRIER	
-												ALL
STATE	CITY	ROAD	CUSTOMER	COMMODITY	TARIFF	ITEM(S)	ATSF	BN	KCS	MP	SPTC	OTHER
MISSOURI	STLOUIS	NS		ALL	MP 8170-C	832-D				\$234.00		
	ST LOUIS	NS		ALL	BN 8005-D	5190		\$250.00				
	ST LOUIS	NS	ELEVATOR "A"	GRAIN	BN 8005-D	5220		\$66.00				
	ST LOUIS	NS	ELEVATOR 'A'	GRAIN	BN 8005-D	5220		\$250.00				
	ST LOUIS	SSW		ALL	MP 8170-C	832-D				\$495.00		
	ST LOUIS	SSW		ALL	BN 8005-D	5190		\$495.00				
	ST LOUIS	SSW	ELEVATOR 'A'	GRAIN	BN 8005-D	5220		\$495.00				
	SUMNER	CBRM	CARROLL CTY. GRAIN	ALL	BN 8005-D	5710		\$124.00				
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Finance Docket No. 30700

App. A-11

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STUDY OF RECIPROCAL SWITCHING IN SIX STATES

Finance Docket No. 30700

			MAX. REC	PROCAL	SW CHAR	GES PER C	AR BY CA	RRIER				
STATE	CITY	BOAD	CUSTOMED		TADIES							ALL
STATE	CIT I	HOAD	COSTOMER	COMMODITY	TAHIFF	TIEM(S)	AISF	BN	KCS	MP	SPTC	OTHER
	GENERAL	ATSE		A11	MP BITO C	705				.77.00		
	GENERAL	ATSE		NON GRAIN	MP E170 C	122.4				\$100.00		
	GENERAL	BN			MP 8170 C	705				\$100.00		
	GENERAL	BN		ALL	ATSE BOOLE	360	e70 00			\$17.00		
	GENERAL	BN		GRAIN	MP 8170 C	125	\$73.00					
	GENERAL	BN		NON GRAIN	MP 8170 C	135				\$60.00		
	GENERAL	KCS		ALL	MP 8170-C	705				\$130.00		
	GENERAL	KDD		ALL	MP 8170-C	705				\$177.00		
	GENERAL	IND.		ALL	MP 8170-C	705				\$77.00		
	GENERAL	IMP		ALL	ATSF BOOT-E	360	\$134.00					
	GENERAL	MP		GRAIN	AISF BOUT-E	116	\$60.00					
	GENERAL	MP		NON-GHAIN	BN 8005-D	290		\$130.00				
	GENERAL	NOKL		ALL	ATSF 8001-E	360	\$29.05					
	GENERAL	SP CD		GRAIN	MP 8170-C	125-D				\$495.00		
	GENERAL	SP		GHAIN	ATSF 8001-E	366	\$495.00					
	GENERAL	55		ALL	ATSF 8001-E	360	\$29.05					
	GENERAL	SSW		GHAIN	MP 8170-C	125-D				\$495.00		
	GENERAL	SSW		GRAIN	ATSF 8001-E	366	\$495.00					
	GENERAL	UP		GRAIN	ATSF 8001-E	116	\$60.00					
	GENERAL	UP		NON-GRAIN	BN 8005-D	290		\$130.00				
	ALTUS	ATSF		ALL	BN 8005-D	1330		\$180.00				
	ALTUS	BN		GRAIN	ATSF 8001-E	400-405	\$267.00					
	ALTUS	FMRC		ALL	BN 8005-D	1330		\$180.00				
	ALTUS	MP		ALL	BN 8005-D	1330		\$180.00				
	ALTUS	MP(MK		GRAIN	ATSF 8001-E	400-405	\$184.00					
	ALTUS	WTJR		ALL	BN 8005-D	1330		\$180.00				
	ARDMORE	BN		CHEM	ATSF 8001-E	430-440	\$180.00					
	AVARD	BN		GRAIN	ATSF 8001-E	515	\$180.00					
	BLACKWELL	BN		CHEM	ATSF 8001-E	525-545	\$101.00					
	BLACKWELL	BN		GRAIN	ATSF 8001-E	525-545	\$180.00					
1	CLINTON	FMRC		GRAIN	BN 8005-D	8160		\$157.00				
	CLINTON	FMRC		GRAIN, CHEM	ATSF 8001-E	3905-A	\$193.00					
	DEWEY	MP(MK		GRAIN	ATSF 8001-E	1025	\$184.00					
	DURANT	BN		ALL	MP 8170-C	706.30-A				\$181.00		

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STUDY OF RECIPROCAL SWITCHING IN SIX STATES

Finance Dock	ket No. 30700	
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DESCRIPTION							MAX. RECIPROCAL SW CHARGES PER CAR BY CARRIER					
STATE	CITY	ROAD	CUSTOMER	COMMODITY	TARIFF	ITEM(S)	ATSF	BN	KCS	MP	SPTC	ALL
OKLAHOMA	ENID	MP		GRAIN	ATSF 8001-E	1090	\$134.00					
	ENID.	ATSF		ALL	BN 8005-D	2720		\$104.00				
	ENID.	MP		ALL	BN 8005-D	2720		\$143.00				
	GARDEN CITY	GCW		GRAIN	ATSF 8001-E	1157-A						
	LAWTON	MP		ALL	BN 8005-D	4190		\$151.00				
	MUSKOGEE	BN		ALL	MP 8170-C	710-B				\$181.00		
	OKLAHOMA CITY	ATSF		ALL	MP 8170-C	711-B				\$181.00		
	OKLAHOMA CITY	BN		ALL	MP 8170-C	711-B				\$181.00		
	OKLAHOMA CITY	BN		CHEMICALS	ATSF 8001-E	1440-172	\$180.00					
	OKLAHOMA CITY	MP(MK		CHEMICALS	ATSF 8001-E	1440-172	\$184.00					
	OKLAHOMA CITY	MP(OK		CHEMICALS	ATSF 8001-E	1440-172	\$134.00					
	PAWNEE	BN		GRAIN	ATSF 8001-E	1855	\$180.00					
	PERRY	BN		GRAIN	ATSF 8001-E	1865	\$180.00					
	SHAWNEE	ATSF		ALL	MP 8170-C	711.5				\$181.00		
	TULSA	ATSF		ALL	BN 8005-D	5860		\$167.00				
	TULSA	BN		ALL	ATSF 8001-E	2220	\$167.00			1 1		
	TULSA	BN		ALL	MP 8170-C	705				\$112.00		
	TULSA	MP		ALL	BN 8005-D	5860		\$167.00				
	TULSA	MP	GA PACIFIC	ALL	ATSF 8001-E	2220	\$80.00					
	TULSA	MP(MK		ALL	ATSF 8001-E	2220	\$267.00					
	TULSA	SKOL		ALL	BN 8005-D	5860		\$167.00				
	TULSA	SS		ALL	BN 8005-D	5860		\$167.00				
	TULSA	SS		ALL	ATSF 8001-E	2220	\$50.00					
	WOODWARD	NOKL		ALL	ATSF 8001-E	2560-258	\$75.00					
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					1							

App. A-13

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STUDY OF RECIPROCAL SWITCHING IN SIX STATES

Finance Docket No. 30700

				MAX. REC	IPROCAL	SW CHAR	GES PER	CAR BY CA	RRIER			
												ALL
STATE	CITY	ROAD	CUSTOM	COMMODITY	TARIFF	ITEM(S)	ATSF	BN	KCS	MP	SPTC	OTHER
TEVAC		1					i					
TEXAS	CENEDAL	LITOR										
	GENERAL	AISF		GHAIN	SP9500-D	6040					\$100.00	
	GENERAL	AISF		NON-GHAIN	MP 8170-C	122-A				\$100.00		
	GENERAL	BN		GRAIN	MP 8170-C	135				\$60.00		
	GENERAL	BN		NON-GRAIN	MP 8170-C	140				\$130.00		
	GENERAL	MP		GRAIN	SP9500-D	6050					\$100.00	
	GENERAL	MP		GRAIN	ATSF 8005-E	111	\$60.00					
	GENERAL	MP		NON-GRAIN	BN 8005-D	290		\$130.00				
	GENERAL	SP			ATSF 8005-E	216	\$495.00					
	GENERAL	SP		GRAIN	MP 8170-C	125-D				\$495.00		
	GENERAI.	SP		GRAIN	ATSF 8005-E	836	\$450.00					
	GENERAL	ssw			ATSF 8005-E	216	\$495.00					
	GENEPAL	SSW		GRAIN	MP 8170-C	125-D				\$495.00		
	GENERAL	SSW		GRAIN	ATSF 8005-E	836	\$450.00					1
	GENERAL	UP		GRAIN	SP9500-D	6050					\$100.00	
	GENERAL	UP		NON-GRAIN	BN 8005-D	290		\$130.00				[
	GENERAL	MP			ATSF 8005-E	114	\$100.00					
	ALVARADO	MP			ATSF 8005-E	220	\$90.00					
	AMARILLO	ATSF		ALL	3N 8005-D	1350		\$104.00				
	AMARILLO	BN	ALL OTH	GRAIN	ATSF 8005-E	230-249	\$104.00					
	AMARILLO	BN	PRODUC	GRAIN	ATSF 8005-E	651	\$111.00					
	BAY CITY	MP			ATSF 8005-E	260-266	\$104.00					
	BEAUMONT	ATSF		ALL	KCS 8100-A	230			\$220.00			
	BEAUMONT	KCS		GRAIN	ATSF 8005-E	270	\$200.00					
	BEAUMONT	MP			ATSF 8005-E	270	\$104.00					1
	BEAUMONT	MP		ALL	KCS 8100-A	230			\$495.00			
	BEAUMONT	SP		ALL	KCS 8100-A	230			\$220.00			1
	CARROLTON	BN		ALL	MP 8170-C	876-B				\$130.00		1
	CARROLTON	SP		ALL	MP 8170-C	876-B				\$285.00		1
	CARROLTON	SSW		ALL	MP 8170-C	876-B				\$285.00		1
	CHAISON	SP		ALL	KCS 8100-A	240			\$265.00			
	CHILLICOTHE	ATSF		GRAIN	BN 8005-D	2180		\$96.00				1
	CHILLICOTHE	BN		GRAIN	ATSF 8005-E	310	\$104.00					1

App. A-14

- 216 -

STUDY OF RECIPROCAL SWITCHING IN SIX STATES

		D	COIDTIC									
	1	1	I SCHIPTIC		1		MAX. REC	IPROCAL	SW CHAR	GES PER C	CAR BY CA	RRIER
STATE	CITY	BOAD	CUSTON	COMMODITY	TADIEE	ITTIMO		-				ALL
TEXAS	COBSICANA	SP	COSTON		BN 8005 D	11EM(5)	AISP	CADE DO	KUS	MP	SPIC	OTHER
· LANO	CORSICANA	SSW		ALL	BN 8005-D	2290		\$495.00				
	DALHART	SSW		ALL	BN 8005-D	2290		\$495.00				
	DALLAS	ALL BO	GROUPR	ALL	MD 9170 C	2300		\$495.00				
	DALLAS	ATSE	anoor b	ALL	KCS B100 A	011-0			*****	\$285.00		
	DALLAS	ATSE	GROUPA	ALL	MD 8170.C	977.0			\$131.00	****		
	DALLAS	BN	Choor A	ALL	KCS BIOD A	260			COAE OO	\$29.00		
	DALLAS	BN		CHEMICALS	ATSE BOOF E	200	*****		\$245.00			
	DALLAS	BN	GROUPA	ALL	MD 8170 C	077.0	\$104.00					
	DALLAS	KCS	GROUPA	ALL	MP 8170-C	077-0				\$113.00		
	DALLAS	KCSILA	unour A	CHEMICALS	ATCE BOOE E	011-0	*****			\$245.00		
	DALLAS	MP		ALL	KCS B100 A	341	\$131.00		5045 00			
	DALLAS	MPIOK		CHEMICALS	ATSE BOOS E	200	£00.00		\$245.00			
	DALLAS	MPIOK		CHEMICALS	ATSE BOOS E	241	\$29.00					
	DALLAS	SP		ALL	KCS 8100-4	260	\$310.00		\$405 00			
	DALLAS	SP	GROUPA		MD 8170.C	877.0			\$495.00	*70.00		
	DALLAS	SSW	GROUP A	ALL	MP 8170-C	877.C				\$78.00		
	DENISON	BN		ALL	MP 8170-C	878.B				\$78.00	/	
	DENISON	SP		ALL	MP 8170-C	878.B				\$240.00		
	DENISON	SSW		ALL	MP 8170-C	878-B				\$285.00		
	DENISON	TNER		ALL	SP9500.D	7600				\$205.00	£250.00	
	DENTON	MP		ALL	ATSE 8005.E	366	\$104.00				\$259.00	
	DIBOLL	TSE		CHEMICALS	SP9500-D	7600	\$104.00				con no	
	ECHO	SRN		ACID	SP9500-D	7620					\$300.00	
	EL PASO	BN		ALL	MP 8170-C	881.B				\$21.00	\$400.00	
	EL PASO	MP			ATSE BOOS E	390	\$61.00			\$31.00		
	EL PASO	MP	ASARCO	ACID	ATSE 8005.E	114	\$70.00					
	EL PASO	SP		ALL	MP 8170-C	881-B	+10.00			\$78.00		
	EL PASO	SSW		ALL	MP 8170-C	881-B				\$78.00		
	FORT WORTH	ATSF		ALL	BN 8005-D	2920		\$153.00		0.00		
	FORT WORTH	MP		ALL	BN 8005-D	2920		\$153.00				
	FORT WORTH	SP		ALL	BN 8005-D	2920		\$495.00				
	FORT WORTH	SSW		ALL	BN 8005-D	2920		\$495.00				

App. A-15

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- 217 -

STUDY OF RECIPROCAL SWITCHING IN SIX STATES

		Finance	MAX. RECIPROCAL SW CHARGES PER CAR BY CARRIER									
									I	T	1	ALL
STATE	CITY	ROAD	CUSTOM	COMMODITY	TARIFF	ITEM(S)	ATSF	BN	KCS	MP	SPTC	OTHER
TEXAS	FT WORTH	ATSF	GROUP A	ALL	MP 8170-C	882-C				\$35.00		
	FT WORTH	ATSF	GROUP A	ALL	MP 8170-C	882-D				\$130.00		
	FT WORTH	ATSF	GROUP B	ALL	MP 8170-C	882-C				\$141.00		
	FT WORTH	ATSF	GROUP B	ALL	MP 8170-C	882-D				\$141.00		
	FT WORTH	BN		GRAIN	ATSF BOOS-E	401	\$153.00					
	FT WORTH	BN	GROUP A	ALL	MP 8170-C	882-D				\$130.00		
	FT WORTH	BN	GROUP A	ALL	MP 8170-C	882-C				\$96.00		
	FT WORTH	BN	GROUP B	ALL	MP 8170-C	882-C				\$285.00		1
	FT WORTH	BN	GROUP B	ALL	MP 8170-C	882-D				\$285.00		
	FT WORTH	CTE		GRAIN	ATSF 8005-E	401-A	\$153.00					
	FT WORTH	FWDB			SP9500-D	7630					\$230.00	1
	FT WORTH	MP		GRAIN	ATSF 8005-E	401-A	\$60.00					
	FT WORTH	SP	GROUP A	ALL	MP 8170-C	882-C				\$78.00		
	FT WORTH	SP	GROUP A	ALL	MP 8170-C	882-D				\$130.00		
	FT WORTH	SP	GROUP B	ALL	MP 8170-C	882-C				\$285.00		
	FT WORTH	SP	GROUP B	ALL	MP 8170-C	882-D				\$285.00		
	FT WORTH	SSW	GROUP A	ALL	MP 8170-C	882-D				\$130.00		
	FT WORTH	SSW	GROUP A	ALL	MP 8170-C	882-C				\$78.00		
	FT WORTH	SSW	GROUP B	ALL	MP 8170-C	882-D				\$285.00		
	FT WORTH	SSW	GROUP B	ALL	MP 8170-C	882-C				\$285.00	>	
	GALVESTON	BN			ATSF 8005-E	421-424	\$104.00					
	GALVESTON	GVSR			SP9500-D	7640					\$83.00	
	GALVESTON	MP(GH			ATSF 8005-E	421-424	\$135.00					
	GALVESTON	MP(MK			ATSF 8005	421-424	\$146.00					
	GIDDINGS	AUNW		CHEMICALS	SP9500-D	7650					\$429.00	
	GREENVILLE	KCS		ALL	MP 8170-C	885-B				\$136.00		
	GREENVILLE	SP		ALL	MP 8170-C	885-B				\$285.00		
	GREENVILLE	SSW		ALL	MP 8170-C	885-B				\$285.00		
	HARWOOD	TXGN		GRAIN	SP9500-D	7660					\$250.00	
	HODGE	BN		ALL	MP 8170-C	887-B				\$285.00		
	HODGE	SP		ALL	MP 8170-C	887-B				\$285.00		
	HODGE	SSW		ALL	MP 8170-C	887-B				\$285.00		
	HOUSTON	ATSF		ALL	BN 8005-D	3250		\$234.00				
	HOUSTON	ATSF	GROUP A	ALL	MP 8170-C	888-B				\$40.00		

STUDY OF RECIPROCAL SWITCHING IN SIX STATES

Finance Docket No. 30700

		MAX. RECIPROCAL SW CHARGES PER CAR BY CARRIER										
												ALL
STATE	CITY	ROAD	CUSTOM	COMMODITY	TARIFF	ITEM(S)	ATSF	BN	KCS	MP	SPTC	OTHER
TEXAS	HOUSTON	ATSF	GROUP B	ALL	MP 8170-C	888-B				\$216.00		
	HOUSTON	BN			ATSF 8005-E	451-456	\$234.00					
	HOUSTON	BN	GROUP A	ALL	MP 8170-C	888-B				\$213.00		
	HOUSTON	BN	GROUP B	ALL	MP 8170-C	888-B				\$216.00		
	HOUSTON	HBT			SP9500-D	7670					\$405.00	
	HOUSTON	KCS	GROUP A	GRAIN	MP 8170-C	888-B				\$216.00		
	HOUSTON	KCS	GROUP B	ALL	MP 8170-C	888-B				\$216.00		
	HOUSTON	MP			ATSF 8005-E	451-456	\$41.00					
	HOUSTON	MP		ALL	BN 8005-D	3250		\$234.00				
	HOUSTON	MP(MK			ATSF 8005-E	451-456	\$216.00					
	HOUSTON	SP		ALL	SWFB 8451	310						\$495.00
	HOUSTON	SP		ALL	BN 8005-D	3250		\$495.00				
	HOUSTON	SP	GROUP A	ALL	MP 8170-C	888-B				\$283.00		
	HOUSTON	SP	GROUP B	ALL	MP 8170-C	888-B				\$298.00		
	HOUSTON	SSW		ALL	BN 8005-D	3250		\$495.00				
	HOUSTON	SSW	GROUP A	ALL	MP 8170-C	888-B				\$283.00		
	HOUSTON	SSW	GROUP B	ALL	MP 8170-C	888-B				\$298.00		
	LUBBOCK	ATSF		ALL	BN 8005-D	4360		\$96.00				
	LUBBOCK	BN		CHEMICALS	ATSF 8005-E	470-496	\$104.00					
	LUBBOCK	BN		GRAIN	ATSF 8005-E	470-496	\$104.00					
	MOSCOW	MCSA			SP9500-D	7680					\$241.00	
	PARIS	ATSF		ALL	MP 8170-C	893-B				\$20.00		
	PARIS	KRR		ALL	MP 8170-C	893-B				\$155.00		
	PARIS	MP			ATSF 8005-E	546	\$20.00					
	PARIS	SP		ALL	MP 8170-C	893-B				\$78.00		
	PARIS	SSW		ALL	MP 8170-C	893-B				\$78.00		
	PLAINVIEW	ATSF		ALL	BN 8005-D	4840		\$125.00				
	PLAINVIEW	BN		GRAIN	ATSF 8005-E	550-556	\$104.00					
	PORT ARTHUR	KCS		PET COKE	SP9500-D	6240					\$235.00	1
	PORT ARTHUR	SP		ALL	KCS 8100-A	370			\$265.00			
	SAN ANTONIO	ALL RO		ALL	MP 8170-C	894-B				\$167.00		
	SHERMAN	BN	GROUP A	ALL	MP 8170-C	896-B				\$83.00		
	SHERMAN	BN	GROUP B	ALL	MP 8170-C	896-B				\$133.00		
	SHERMAN	SP		ALL	BN 8005-D	5440		\$495.00				1

STUDY OF RECIPROCAL SWITCHING IN SIX STATES

Finance Docket No. 30700								MAX. RECIPROCAL SW CHARGES PER CAR BY CARRIER							
		DE	SCHIPTION		11		T	T				ALL			
STATE	CITY	ROAD	CUSTOME	COMMODITY	TARIFF	ITEM(S)	ATSF	BN	KCS	MP	SPTC	OTHER			
TEXAS	SHERMAN	SP	GROUP A I	ALL	MP 8170-C	896-B				\$83.00					
	SHERMAN	SP	GROUP BI	ALL	MP 8170-C	896-B				\$285.00					
	SHERMAN	SSW		ALL	BN 8005-D	5440		\$495.00							
	SHERMAN	SSW	GROUP AI	ALL	MP 8170-C	898-B				\$83.00					
	SHERMAN	SSW	GROUP BI	ALL	MP 8170-C	896-B				\$285.00					
	SHERMAN	TNER	1	ALL	SP9500-D	7685					\$235.00				
	SHERMAN	TNER		ALL	BN 8005-D	5440		\$220.00							
	SULPHUR SPRINGS	SSW		ALL	KCS 8100-A	390			\$225.00						
	SWEETWATER	MP			ATSF 8005-E	590-594	\$20.00								
	TEMPLE	MP(MKT			ATSF 8005-E	600-603	\$130.00			\$150.00					
	TEXARKANA	KCS		ALL	MP 8170-C	898-B				\$78.00					
	TEXARKANA	SP		ALL	MP 8170-C	898-B				\$78.00					
	TEXARKANA	SSW		ALL	MP 8170-C	898-B				\$285.00					
	WACO	ALL RO		ALL	MP 8170-C	898-B				\$130.00					
	WICHITA FALLS	ALL RO		ALL	MP 8170-C	899.05-B		\$175.00							
	WICHITA FALLS	MP		ALL	BN 8005-D	6270		\$175.00							
	WICHITA FALLS	WTJR		ALL	BN 8005-D	6210		•110.00							
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VERIFIED STATEMENT OF A. W. REES

QUALIFICATIONS

My name is A. W. Rees and I am Senior Vice President-Operations and Chief Operating Officer for The Kansas City Southern Railway ("KCS"). I assumed my current position with KCS in 1995. Prior thereto I was employed at The Atchison, Topeka & Santa Fe Railway Company ("ATSF") from 1989 until of 1995. At the time of my departure from ATSF, I was Vice President of Quality Management. From 1969 through 1989, I was employed by the Missouri Pacific Railroad Company ("MPRR") and then Union Pacific Railroad Company ("UPRR"), serving in various executive positions including General Manager of MPRR's Texas Division at Dallas, Texas from 1982 to 1985 and General Manager of UPRR's Western Region at Salt Lake City, Utah, from 1985 to 1989.

Details of my work experience and qualifications are set forth in the Appendix to this statement, most of which are highly pertinent to the evidence I am offering in this statement. For instance, during my tenure at MPRR, I was responsible for operations, engineering, maintenance, budgeting and administration, labor relations and safety rules compliance for the line between Texarkana and East St. Louis. Thus, I believe that I have unique experience with which to comment on UP/SP's claimed need to use both the current UP and SP routes between Texarkana and East St. Louis for "bi-directional operations utilizing paired tracks."

STATEMENT

Before I proceed to explain why those operations on the two lines, as proposed by UP/SP's witnesses King and Ongerth, are totally nonsensical, I should state the real reason why UP/SP have proposed such a previously unheard of operating scheme.

I was integrally involved in KCS's negotiations with UP/SP, immediately after they announced their proposed merger on August 4, 1995. Among the proposals made by KCS to UP/SP at the outset of these discussions was that UP/SP sell to KCS one of the two duplicative, parallel routes between Houston and East St. Louis. UP/SP rejected this proposal, stating that they needed to retain ownership of both routes. Considering UP/SP's reluctance to sell, as evidenced by that rejection, in conjunction with their inane proposal for operating over both routes between Texarkana and East St. Louis, I am convinced that the child is its own parent. That is, UP/SP's desire to retain control of both routes is responsible for the illogical rationale which they have developed for doing so. Now, let me discuss that illogical rationale.

My friend, Don Swanson, is offering a companion Verified Statement in this proceeding which provides general conceptual criticism of "bi-directional operations on paired tracks." The observations which I offer here are more specific, based upon my experience with specific rail service characteristics between Tetarkana and East St. Louis.

The UP route between Texarkana and East St. Louis, which I used to supervise, is 521 miles in length, with three different crew districts requiring two crew change points. It contains 234 route miles of double main track and in single track territory contains 20 sidings capable of chambering trains 145 cars in length (at 50 ft. per car). The entire UP route is signaled with centralized traffic control (CTC), wherein the train dispatcher controls key switches and signals.

The SP route, on the other hand, is 549 miles in length, with four different crew districts and three crew change points. It contains 112 route miles of double main track and in single track territory contains 23 sidings capable of chambering trains 145 cars in length (at 50 ft. per car). Almost all of the SP route is signaled with CTC.

The two routes do not share any common terminal locations between Brinkley, Arkansas and Texarkana, except for Little Rock, which is an off-line point for SP. (SP abandoned its branch line to Little Rock some time ago and serves Little Rock by using rights over another UP line.) The closest existing crew change points between the two routes are North Little Rock on the UP an Tine Bluff on the SP, which are 47 miles apart.

¹JP/SP plans to create a new crew change point at Dexter, MO, so that one set of crews using the SP route would operate 172 miles between East St. Louis and Dexter and the next set of crews would operating 223 miles between Dexter and Pine Bluff. Dexter is 24 miles from the existing UP crew change point at Poplar Bluff. Changing crew runs and altering crew change points will require separate negotiations with union members and will be difficult and expensive.

Coming to terms with the one-way train operation, another aspect which will require union negotiations, also will be difficult and expensive. In addition, because the planned intermediate crew change points between East St. Louis and Texarkana are not in the same communities, UP/SP will have to taxi crews back and forth

- 223 -

between crew terminals at the beginning or end of the train runs.

For example, operating all southward trains on the SP route means that UP crews arriving at Dexter will have to be hauled 24 miles by highway to reach their normal off-duty point at Poplar Bluff, so that they will be in position to take a northward train back to East St. Louis. A UP crew at Poplar Bluff, which is required for a southward train, will likewise have to be hauled 24 miles to Dexter to meet their homeward train. The scenario repeats itself at Pine Bluff, except that the UP crews will have to be hauled 47 miles each way between Pine Bluff and their normal on and off duty point in North Little Rock. A very similar scenario will exist in reverse for the SP crews manning northward trains operating over the UP line.

The crew hauling will be continuous and expensive. Due to variations in train operations, the crew hauling operation will inevitably end up operating empty vehicles both directions between both sets of cities each day, a phenomenon that will further add to crew transportation costs.

Crew hauling is within a crew's duty time and must be done within the restrictions set by the hours of service law. This "shuttling while on duty," of course, cuts into the duty time in which a crew can actually operate a train.

In fact, shuttling may consume so much duty time as to prohibit a crew from completing its actual train operations in the same 12 hour period. If a crew cannot complete its tour of duty within the 12 hour limit, it must be relieved immediately and transported to a crew change point. And, of course, a replacement crew must be transported to the halted train to complete the balance of its movement to the next crew change point.

An alternative to the above described crew hauling is available by operating

crews the entire distance between East St. Louis and Texarkana, stopping them twice en route so that they can receive their rest mandated under federal hours of service restrictions. This mode of operation would be an even tougher sell with the operating unions because they would be away from their homes and families for long periods of time. It would be expensive for UP/SP to implement and difficult to manage unless all crews were moved to either Texarkana or East St. Louis. Such a wholesale moving of crew members and their families would be very expensive, even if agreed to by the union membership, and thus highly unlikely to occur.

The alternative crew manning mode discussed above has the additional expense of training crews on much of the 1,071 miles of railroad with which they are not familiar. The lead time for this familiarization would be months and the resulting crew management nightmares during the training period would be substantial. Again, it is not likely that this method of operation would be given serious consideration by seasoned railroads.

Given the additional crew expense involved, one has to ask why UP/SP wants to operate trains one-way on these separate routes. When reading the statement of Messrs. King and Ongerth describing the operating plan (Application, vol. 3, pp. 41-48), the concept of one-way train traffic sounds very intriguing--until one gives it more thought.

Managing local traffic in the face of one-way trains could prove to be very challenging. Local trains servicing en route customers will either take much longer moving in the opposite direction of the flow or have to move in the same direction as the general flow in order to get over their territory within the 12 hours prescribed by federal hours of service restrictions. If the latter becomes the standard, several operating problems immediately surface.

First, of all those customers with only one switch into their facilities, roughly half of them will have switches facing the wrong direction for one-way train movement. That means that locals will either have to shove cars ahead of the locomotive for long distances (a time consuming, less than desirable method) or skip service to that customer in order to make it to their terminal within the federal hours of service requirement.

Second, not all traffic originating or terminating on these one-way routes will be moving in the direction of the traffic flow. For example, a carload of paper from Camden, Arkansas may be destined to St. Louis. If the local operation is one way south, in concert with the through traffic, that car will have to go 80 miles in the wrong direction before it will be at a common point (Texarkana) for movement toward St. Louis, generating about 140 extra route miles and at least one a day's extra transit time.

The ability of local trains to get over their territory to service local customers is not the only challenge. For example, SP operates a number of unit-like trains for rock and steel between the Shreveport Line and points east of Lewisville on the Pine Bluff subdivision. Those trains are typically handled in turn-around service from Shreveport and will have to negotiate their way against opposing, one-way traffic for half of their trip. This will be especially challenging south of Lewisville where that portion of the railroad is not signaled.

These are only a few examples of the problems that will confront some of the local traffic. Shippers who have not realized the impact that one-way operations will have on their local or intermediate traffic are in for a revelation in future service

- 226 -

standards.

Also, from a shipper's standpoint, the extra car miles generated by out-ofroute movements resulting from one-way train traffic will be costly. Many shippers own or lease their own rail cars for transporting their goods. The trend for the last ten years or so has been for shippers to trade car mileage payments made by railroads for the use of private (non-railroad owned) cars for lower freight rates, thus simplifying complex record keeping. But the largest portion of car maintenance expense is directly related to the miles the car moves. Hence, if one-way operations result in cars going out-of-route as described above, the owner's (shipper's) maintenance expenses will increase with no corresponding offset in railroad mileage payments likely.

You will note that I earlier referred to UP's and SP's routes between Texarkana and East St. Louis as being not only parallel but <u>duplicative</u>. They are duplicative simply because they each contain railroad plant features that are duplicated on the other route and, thus, not superfluous for rail operations. As I pointed out earlier, they each contain road crossings, sidings, signal systems and bridges. Only one set of these need be maintained for rail operations. Pure "bi-directional" operations might reduce the need for some sidings and signaling capability. However, UP/SP do not propose pure "bi-directional" operations. They propose that only local trains will continue to operate in both directions on both the northbound and southbound routes.

Including sidings and yards, a second, separate route will have at least 50% more track than a single route. Experienced operating officers know that crew balancing is always easier with higher volumes of trains than with lower volumes.

Placing trains from two routes onto one route not only makes a crew balancing easier, it reduces the amount of costly deadheading, or held away from home, crew expense.

Railroading is a volume business. Unit costs decrease with increases in volume because the fixed investment (physical plant) is better utilized. Placing all trains on one of the two routes would lower unit operating costs even if capital investment had to be increased for double tracking that part of the remaining line that isn't already double track.

There are many reasons the costs for operating one line will be lower than for two lines. In addition to maintaining fewer bridges, culverts, road crossings and miles of track, and having fewer crew expenses, track maintenance on double tracked lines is less expensive because maintenance crews attain longer working periods on one track while trains operate nearly uninterrupted on the adjacent track. Maintaining two largely single track lines results in either significant train delay or maintenance gang delays--on both lines. A double track, CTC railroad will have higher total train capacity than two single track, CTC railroads, so a double main track railroad, once equipped, will be able to handle future increases in volume at lower incremental cost.

In sum, the operating costs of two independent directional routes will be higher than they will be for one bi-directional route, even if capital improvements are necessary on the bi-directional route. By choosing to operate two routes directionally, UP/SP will:

(1) Avoid, at least initially, capital dollars to upgrade one line to handle both line's of traffic (even though the sale proceeds from one line could finance significant improvements on the other);

(2) Keep competitors from buying one of the lines, thereby

- 228 -

depriving them of "owner's advantage" on the route; and

(3) Avoid the possible tax consequences of selling capital assets.

The upshot is that in due time, UP/SP will improve the superior lines of its duplicate routes and downgrade or abandon the inferior lines because the railroad business will continue to be cost driven, as well as service driven, for some time to come.

There is a reason that UP/SP is only selling 335 miles of track to BNSF and granting them trackage rights on the remainder of the 3,000-plus miles. BNSF knows that if they are to provide serious, cost competitive service over a given stretch of railroad line, they must own the line. UP has known this maxim for a long time and it was a primary factor in UP buying the MKT railroad. Key portions of UP's Missouri Pacific subsidiary used MKT via traditional trackage rights. MKT would not maintain or dispatch its railroad to UP standards. UP was seriously concerned about its future operations over MKT lines and took the necessary steps to bring the situation under control--it bought MKT. SP is also painfully aware of a tenant's pitfalls under trackage rights agreements, and in fact, took action against UP in 1994 over trackage rights operations (Application, vol. 3, p. 74).

Robert Krebs, Chairman and CEO of Santa Fe Railway prior to the BNSF merger, was very forthright with one of his reasons for justifying the BN-Santa Fe merger: Despite entering into an agreement with BN for them to haul Santa Fe's trains between Avard, Oklahoma, Memphis, Tennessee, and Birmingham, Alabama, BN could not run the trains on time even though the contract specifically addressed train performance. Mr. Krebs felt very strongly that the only way to control one's operation and service is to own the railroad. Evidently, Rob Krebs has chosen to ignore his past difficulties with BN's inability to run Santa Fe trains on time now that the BNSF merger has been consummated, hoping instead that UP/SP will offer a better operating atmosphere than BN did.

Why, one must ask, was BNSF's CEO so eager to gain trackage rights when he knows the pitfalls of operating over another railroad's line? The answer has to be that UP/SP would not sell the lines and the only way BNSF could get into longcoveted SP markets was via trackage rights.

Finally, one must ask why UP/SP selected the SP route for BNSF trains, and why BNSF did not get trackage rights on both UP and SP lines so that they could "enjoy" the same one-way benefits UP/SP espouses. The SP route is over 20 miles longer, so UP/SP will generate more trackage rights revenue from each BNSF train using the SP route than if the train ran on the UP route. Thus, BNSF not only will have to haul each of its trains farther than UP/SP does (incurring more fuel, wage, and other expense), but it will end up paying more in trackage rights fees--and paying them to its arch rival.

Each northward BNSF train on the SP Line will face the southward fleet of UP/SP trains and its own local BNSF trains for the entire distance from Houston to East St. Louis. Because the home road (UP/SP) will be dispatching the trains, the natural tendency will be for BNSF trains to experience more delays than UP/SP trains. And that's not the only reason: any train dispatcher would be less apt to give equal treatment to a train moving in one direction when an entire fleet of trains is moving in the opposite direction.

The host railroad invariably is responsible for dispatching trains of both companies over the joint territory and uses its own dispatching equipment. Train dispatching hardware and software has changed rapidly in the past few years and continues to change so that many railroad lines are dispatched with outmoded equipment. New techniques not only lower dispatching costs but they also enable greater efficiencies to be achieved in the movement of trains. The host railroad does not always have the incentive to re-equip its dispatching offices covering a joint line despite the tenant carrier's needs, thereby resulting in delays to tenant's trains that the tenant can do nothing about.

More importantly, there can be huge differences in management philosophy. Some railroads pay more attention to service quality and on time delivery while other railroads emphasize control of operating expense. Some railroads attempt to run shorter, faster trains while others attempt to run longer, slower trains thus attempting to use fewer crews and locomotives. Even though the tenant railroad may clearly specify its philosophies and priorities, the host railroad "runs the show" and the tenant simply has to live with the show as it is played.

But the real puzzle is why UP/SP placed the BNSF on the line of railroad that has less capacity. UP/SP's directional movement will theoretically place half of its trains on the UP Line and the other half on the SP Line. Although both routes are equipped with CTC, the UP route between East St. Louis and Texarkana has 120 more route miles of double track than the SP Line has. Also, the UP Line has nearly as many sidings in the single track portion of its line as SP has on its single track portion, even though SP's single track portion is 50% longer than UP's. Clearly, the UP route has more capacity. Yet, the longer SP Line will end up with <u>all</u> of BNSF's trains plus half of UP/SP's trains despite having less capacity.1

This capacity issue really begs the question of operations when one considers that much the SP's "Rabbit" line from Lewisville through Shreveport to Houston has no signals at all and in fact, was cited by Messrs. King and Ongerth as a reason for settling on the one-way operation (Application, vol. 3, pp. 44, 45).

ST. LOUIS GATEWAY

Much of the railroad traffic moving into the St. Louis-East St. Louis area is for interchange to other railroads. All three major eastern railroads--Conrail, CSX, and Norfolk Southern--operate into East St. Louis from their Eastern, Northeastern, Southern and Southeastern markets. In addition, Illinois Central and Gateway Western Railroad operate into East St. Louis. The major western carriers, BNSF, UP and SP all operate into the St. Louis area from their Western, Southwestern and Midwestern market areas.

Of the eastern carriers, only Norfolk Southern crosses the Mississippi River into St. Louis (and beyond, to Kansas City). Illinois Central and Gateway Western operations are confined to the east bank of the Mississippi River at East St. Louis. UP and SP have major operations in East St. Louis although UP does have considerable operations on the west bank of the Mississippi. BNSF also conducts considerable operations on the west bank of the Mississippi.

Two terminal railroads, Terminal Railroad Association of St. Louis (TRRA) and The Alton and Southern Railway Company (A&S), perform much of the switching and transferring (interchange) activity for the Class I railroads in the St.

¹ It is curious why BNSF, supposedly intent on competing with UP/SP, did not demand access to both routes (for its own "bi-directional" operations) and settled for trackage rights over a route on which its northbound trains will operate in the teeth of UP/SP's southbound traffic.

Louis area. Very little interchange between railroads in St. Louis occurs outside of TRRA or A&S operations. Major classification yards for both TRRA and A&S are east of the Mississippi so it is vital for carriers west of the Mississippi to have access to East St. Louis.

Without access to East St. Louis, a Western railroad would be at an extreme disadvantage and could not successfully interchange with Eastern railroads without paying bridge and transfer fees for one of the terminal companies, TRRA, to haul its traffic across the Mississippi to East St. Louis. Those fees have been historically high, amounting to several hundred dollars per car. Eastern railroads do not deal with this problem because they are already in East St. Louis with access to TRRA and A&S.

Gateway Western Railroad avoids bridge fees entering East St. Louis because it owns a bridge over the Mississippi about 85 miles upstream, near Louisiana, MO. Both UP and SP operate into East St. Louis from the south and UP's line to Chicago operates out of East St. Louis to the northeast. Thus, a sizable portion of UP and SP traffic avoids St. Louis bridge charges as well. BNSF, on the other hand, has access to East St. Louis but maintains a much larger presence west of the Mississippi and thus cannot avoid bridge charges for much of its traffic moving via its Burlington lines.

Because of the terminal switching arrangements in East St. Louis, connections to Eastern railroads in East St. Louis, and bridge charges to cross the Mississippi River, having good access to East St. Louis is extremely important for any western railroad. Therefore, it is particularly curious that BNSF agreed to give UP/SP control of operations over the McArther Bridge in St. Louis.

- 233 -

Not only does BNSF incur bridge charges but they also experience considerable delays in getting trains across the bridge. The fees and congestion problems stand to increase when BNSF attempts to coordinate its St. Louis area operations after gaining trackage rights over UP/SP between Houston and East St. Louis. Ceding control of such a critical gateway to an arch rival stands to put BNSF at a competitive disadvantage for St. Louis gateway traffic.

VERIFICATION

STATE OF MISSOURI)) s COUNTY OF JACKSON)

SS.

I, A. W. Rees, being first duly sworn, upon my oath state that I have read the foregoing statement and the contents thereof are true and correct as stated.

;

Subscribed and sworn to before me this 25th day of March, 1996.

. Rabinsor Public

My Commission Expires:

JOLIE A. BOBNISON Notery Public - State of Missouri Commissioned in Jackson County My Commission Expires May 16, 1993

APPENDIX

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A. W. Rees

EDUCATION

B.S. Business, University Central Arkansas, 1969

Program for Management Development (PMD), Harvard Business School, 1981

Leadership Development Program, 1986

Philip Crosby Quality College, 1986

3M Managing Total Quality, 1990

INDUSTRY ASSOCIATIONS

National Association of Corporate Directors American Arbitration Association Council of Railroad Quality Professionals American Society for Quality Control Association for Quality and Participation Western Railway Club of Chicago

Professional Experience

THE KANSAS CITY SOUTHERN RAILWAY COMPANY, KANSAS CITY, MO

1995 TO Present

Senior Vice President - Operations (1995 to Present) Kansas City Southern Railway Company Kansas City, MO

ATCHISON, TOPEKA & SANTA FE RAILWAY, SCHAUMBURG, IL 1989 to 1995

Responsible for all Transportation, Engineering, Equipment Maintenance, Quality Accident and Injury Prevention, Operating Rules, Security and Prevention Services, Environmental Protection, Technical Training, Land, Leases and Contracts. Annual operating budget of \$1.5 billion and capital budget of \$300 million. Member of Executive Quality Steering Team which developed corporate vision, long range and over-all business strategies. Member of numerous Board of Directors of industry, joint venture and in-house operations.

- Created a cultural change through employee awareness and participation in the quality process. Significantly reduced decades of adversarial union/management relations, increased communication and cooperation between employees and management, achieved productivity and customer service gains, and reduced failure costs, resulting in the achievement of corporate vision.
- Reduced operating expenses \$100 million by directing 3 restructurings, eliminating three levels of management and 4,700 employees.
- Reduced 1994 personal injuries and lost work days by 44.7% and 58.6%, respectively, placing Santa Fe No. 3 in industry safety ranking.
- Achieved annual savings of \$7.5 million as a result of negotiating trackage rights agreements with competing railroads which provided improved route structure and customer service.
- Saved \$80 million annually through team negotiations which revised

inefficient work rules and crew consist arrangements in labor agreements.

- Directed joint operating/marketing efforts to attract and capture additional business in the Texas Gulf Coast area to the east and west coasts.
- Established Derailment Analysis and Prevention Team reducing the derailment ratio, per million train miles, placing Santa Fe No. 4 in the industry.
- Developed and implemented a Disability Management Program, using professional medical staff to ensure proper medical services for injured employees, reduction in expenses, lost work days, and expediting return to work.
- Educated over 10,200 employees in the principles of Quality and trained over 4,000 engineers, conductors and dispatchers in Locomotive Simulation and Train Operations.

UNION PACIFIC RAILROAD, OMAHA, NE

1985 to 1989

General Manager - Western Region, Salt Lake City, UT

Responsible for Transportation, Engineering, Maintenance of Equipment, Budgeting and Administration, Labor Relations, Safety, Loss and Damage Prevention, Public Relations, Policy Formulation and Enforcement directed 7,200 employees in 6 states, with annual revenues of \$800 million and operating and capital budgets of \$393 million and \$30 million, respectively.

- Resolve ongoing crisis created by flooding of Great Salt Lake by securing \$29 million of capital to rebuild track structure, preventing interruption of interstate commerce.
- Directed merger of operations resulting from the acquisition of the Western pacific Railroad.
- Restructured Region through elimination of 4 train yards and repair facilities and 100 employees.

 Created the first all-encompassing, company-wide service measurement system designed to measure company performance against customer expectations.

MISSOURI PACIFIC RAILROAD, ST. LOUIS, MO

1969 to 1985

General Manager - Texas District, Dallas, TX (1982 to 1985)

Responsible for Transportation, Engineering, Maintenance of Equipment, Budgeting and Administration, Labor Relations, Safety and Rules Compliance, Loss and Damage Prevention, Public Relations, Policy Formulation and Enforcement. Directed 3,000 employees in 4 states, with annual revenues of \$400 million and operating and capital budgets of \$210 million and \$18 million, respectively.

- Created a new operating District by building staff, administration and line management into a cohesive operating team.
- Interfaced with President of National Railway of Mexico and Executive Director of Conasupo, increasing Mexican market share from \$20 million to \$110 million.
- Restructured District, eliminating 6 facilities and 100 employees with annual savings of \$10 million and \$4 million, respectively.
- Directed consolidation of District, eliminating 3 levels of management and administrative support, as a result of merger with Union Pacific Railroad.

Began Missouri Pacific employment in 1969 as Management Trainee, progressing through nine promotions to General Manager in 1982.

Executive and Board of Director Positions

Chairman, Port Terminal Railroad Association Chairman, Los Angeles Union Passenger Terminal Railroad Chairman, Council of Railroad Quality Professionals Director, Great Southwest Railroad Director, Texas City Terminal Railway Company Director, Houston Belt & Terminal Railway Company Director, Atchison, Topeka and Santa Fe Railway Company President, Oakland Terminal Railway President, Alameda Belt Line Railway President, Central California Traction Railroad President, Los Angeles Junction Railway Company President, The Wichita Union Terminal Railway Company President, Santa Fe Rail Equipment Company President, St. Joseph Terminal Railroad Company V.P., Weatherford, Mineral Wells & Northwestern Railroad V.P., Ogden Union Railway & Depot Company
Directorships

Chairman, Director, President and Vice President of jointly and wholly owned subsidiaries of Santa Fe, Union Pacific and Missouri Pacific Railroads.

- Director of the Atchison, Topeka & Santa Fe Railway Co. from 1989 to 1995. Participated in dramatic downsizing resulting in revenue growth and significant profit increase, positioning Santa Fe as a leader in the transportation industry, dedicated to growth by meeting customer expectations.
- Port Terminal Railroad Association, Houston, Texas, jointly owned by Union Pacific, Southern Pacific, Santa Fe and Burlington Northern. Member of Board of Operations from 1989 to 1983 and Chairman from 1992 to 1993. Moved the organization towards merger with the Houston, Belt & Terminal Railroad by making numerous joint management positions. Significant achievement in view of the adversarial relationship between the owners due to the continuing changes of directors of the various roads.
- Houston, Belt and Terminal Railroad, Inc., Houston, TX, jointly owned by Union Pacific, Burlington Northern and Santa Fe. Served as Director, member of the Compensation and Executive Committee from August 1989 to May 1993.
- Texas City Terminal Railway, Texas City, TX, 1/3 owned by Santa Fe, 2/3 by Union Pacific. Served as Director, member of the Compensation and Executive Committees from August, 1989 to May 1993. Rebuilt infrastructure, increased revenues, held costs in line and increased dividends to the owner companies 12% - 15% annually during 1989 to 1993.
- Los Angeles Union Passenger Terminal Railroad, Inc., jointly owned by Union Pacific, Southern Pacific and Santa Fe. Assets include the Union Passenger Station in Los Angeles and the surrounding acreage. Served as Director from 1985 to 1987, Chairman during 1986. Facilitated the complete rebuilding of passenger facilities and the ultimate transformation of the organization to a land utilization company.
- Oakland Terminal Railway and Alameda Belt Railway, Oakland, CA,

jointly owned by Union Pacific and Santa Fe. Twice served as President and Vice President of these organizations.

- Twice served as President and Vice President of Central California Traction Railroad at Stockton, CA, during tenure as President, completely restructured the company, reducing losses dramatically.
- Los Angeles Junction Railway Company. Served as President from 1989 to 1993, spearheading downsizing and reduction in expenses, returning Company to profitability.
- Vice President and Director for wholly owned Santa Fe subsidiaries from 1989 to 1993:
 - a. The Clinton and Oklahoma Western Railway Company
 - b. Oklahoma City Junction Railway Company
 - c. The Dodge City and Cimarron Valley Railway Company
 - d. The Garden City, Gulf and Northern Railway Company
 - e. The Gulf and Interstate Railway Company of Texas
 - f. The Kansas Southwestern Railway Company of Texas
 - g. Starlake Railway Company (President)
- Ogden Union Railway & Depot Company, Ogden, UT, jointly owned by Union Pacific and Southern Pacific. Served as Vice President and Director during 1985 to 1988.
- Weatherford, Mineral Wells and Northwestern Railroad (Texas). Served as Vice President and Director 1982 to 1985.
- President and Director of the following railroads jointly owned by Union Pacific and Santa Fe:

a. St. Joseph Terminal RR Company, St. Joseph, MOb. The Wichita Union Terminal Railway Company, Wichita, KS

- Santa Fe Rail Equipment Company, wholly owned subsidiary of Santa Fe Railway. Served as President 1989 to 1993. Subsidiary was used to purchase cars and locomotives.
- Great Southwest Railroad, Arlington, TX, jointly owned by Missouri Pacific, Rock Island, and Missouri-Kansas-Texas Railroads. Served as Director 1982 to 1985.

- Chairman of the Council of Railroad Quality Professionals (CRQP), subdivision committee of the Association of American Railroads (AAR) made up of the senior Quality professionals of major railroads in US and Canada, including Amtrak, American Short Line Association and AAR. Member from 1991 to 1995 and Chairman for 1994.
- Western Railway Club of Chicago, Transportation Club of Railroads and Railroad Equipment Companies. Served as Director, Vice President and President 1993 to 1995.

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VERIFIED STATEMENT OF HILARY S. RAWERT

My name is Hilary S. Rawert. I am Assistant Vice President-Cost Development for The Kansas City Southern Railway ("KCS"). I have over 35 years of experience in various phases of railroad accounting, cost and financial analysis. I hold a Bachelor's Degree in Business Administration from St. Louis University, St. Louis, Missouri. I have served as Chairman of the Cost Analysis Organization of the Association of American Railroads and presently serve on the Price Index Construction Committee of that organization. I have completed post-graduate transportation courses at Northwestern University and the University of Tennessee.

Throughout my railroad career, I have worked with the Interstate Commerce Commission's Uniform Rail Costing System ("URCS") and earlier cost formulas, and I am familiar with the components and application of those formulas in the development of rail transportation service costs. I have testified on numerous occasions before the Commission.

This statement is filed on behalf of KCS and expresses my observations, from a railroad costing perspective, regarding the trackage rights agreement between BN/Santa Fe and UP/SP and why that agreement will not ensure competition.

I have examined the compensation terms of those trackage rights and I do not believe that BNSF can compete effectively with UP/SP using those trackage rights.

First, the method established in the Settlement Agreement for periodically adjusting the trackage rights charges does not account totally for UP/SP's productivity savings on

trackage rights lines,¹ thus placing the tenant (BNSF) under a long term competitive disadvantage. Costs which are meant to be covered by trackage rights fees generally are at least 40 percent fixed (and, thus, 60 percent variable). To the extent that BNSF is able to increase traffic levels on the trackage rights segments, it will generate additional gross ton miles and increased productivity on those segments. However, the manner in which compensation is structured under the "settlement agreement" assures that UP/SP will retain significant productivity savings. That is because the index methodology which UP/SP and BNSF will use to periodically adjust the trackage rights fees as per John Rebensdorf's testimony at p. 304 is the "Rail Cost Adjustment Factor" ("RCAF") unadjusted for productivity. Thus, over a number of years, BNSF's cost of utilizing the trackage rights, not reflecting cost adjustments due to increased total productivity, will considerably exceed UP/SP's costs on those segments, which will have been reduced because of increased productivity. Furthermore, using this method of indexing, the discrepancy between BNSF's and UP/SP's ultimate costs will be inevitable even if the trackage rights fees are completely reasonable at the outset.

To guarantee cost parity and, thus, competitive equilibrium, UP/SP and BNSF must use the RCAF index, adjusted to reflect productivity improvements, especially where the trackage rights purport to solve the reduced competition as a result of the proposed UP/SP consolidation.

As indicated above, the failure to utilize the RCAF index, adjusted for productivity, will provide UP/SP a significant and ever widening cost advantage over the years, even if the

¹ The productivity adjustment made to the Rail Cost Adjustment Factor (RCAF) each quarter by the Interstate Commerce Commission and now the Surface Transportation Board is designed to convert a <u>price index</u> to a <u>cost index</u> for escalation or de-escalation purposes.

trackage rights fees are reasonable from the outset. However, for certain traffic or certain line segments, those fees are not reasonable at the outset. A trackage rights tenant can sustain relatively high trackage rights fees over a trackage rights segment which constitutes a small portion of its through route mileage because it can absorb those costs over the longer balance of the movement. However, as the trackage rights portion of the through movement becomes greater, the high trackage rights fees become less easy to absorb. Where the larger part or even all of the through movement is *via* trackage rights, high trackage rights charges will render the tenant's cost floor higher than the landlord's cost floor and thereby undermine the tenant's ability to compete. In other words, the tenant's cost floor, albeit higher than the landlords, becomes the floor upon which the shipper's rates are based.²

Further substantiation of the principle that long mileage trackage rights are more expensive to the tenant relative to short mileage trackage rights is contained in Table 3 to the testimony of Mr. John H. Rebensdorf (V.S. Rebensdorf, UP/SP Application, Vol. 1, at page 310). That table demonstrates that as the proportion of trackage rights miles to total route miles increases, the trackage rights fee as a percentage of total variable/fully allocated costs also increases. Thus, for movements where the total route miles are relatively equal, <u>i.e.</u>, where the trackage rights miles are 115 miles of a total of 1,468 straight route miles, the trackage rights fees are only four percent (4%) of BNSF's total variable cost for the movement and only three percent (3%) of its total fully allocated costs for the movement. On the other hand, the movement between Denver and Oakland, which is on 100 percent

² See the Verified Statements of KCS Witnesses David T. Hunt and William H. Oderwald for an illustration of actual market share as a function of trackage rights. (V.S. David T. Hunt and William H. Oderwald KCS-33, Figure I.)

trackage rights, trackage rights fees represent 33.5 percent of BNSF's total variable costs for that movement and 27.2 percent of its total fully allocated costs.

Mr. Rebensdorf's finding that, on the Denver-Oakland movement, BNSF's percentage relationships between its trackage rights fee and variable cost is 33.5 percent provides further evidence that the level of the trackage rights fees place BNSF at a competitive disadvantage to UP/SP in that instance. From my experience in developing railroad operating costs, I have found that trackage rights charges typically range between 18 percent and 20 percent of variable costs and typically involve less than 10 percent of the total miles in the route. Since UP/SP's cost floor over the same route will be significantly lower than BNSF's (represented by the difference between 33.5 percent and 20 percent), the trackage rights fee places BNSF at a competitive disadvantage to UP/SP. This differential approaches the margin of profitability on traffic dependent on trackage rights.

An example of the kind of traffic on which BNSF will suffer a disadvantage due to the trackage rights fees is loaded, bulk unit trains. From my experience, I have found that such trains generally consist of approximately 115 cars, containing approximately 105 tons of lading per car, three 3000-horse power units, weighing 200 tons per unit, and with an empty car "tare" weigh of 30.2 tons. At the 3.0 mil per gross ton mile rate for trackage rights which UP/SP will assess BNSF for bulk trains (V.S. Rebensdorf, UP/SP Application, Vol. 1, Table 1 at page 304), the cost for just this one item on a cost per train mile basis would equate to \$48.44 per train mile (or \$.42 per car mile). Based on Mr. Rebensdorf's Table of Comparable Rates, this fee is extremely high (V.S. Rebensdorf, UP/SP Application, Vol. 1, Table 2 page 306). Meanwhile, UP/SP would incur a variable cost for this item at a significantly lower level, thus giving it a competitive advantage that will increase over time.

VERIFICATION

STATE OF MISSOURI)) COUNTY OF JACKSON)

SS.

I, Hilary S. Rawert, being first duly sworn, upon my oath state that I have read the foregoing statement and the contents thereof are true and correct as stated.

Hilary S. Rawert

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Subscribed and sworn to before me this 25^{++} day of March, 1996.

Notary Public

My Commission Expires:

JAX A. ROBINS IN A Mary Public - State of Missouri Commissioned in Jackson County My Commission Expires May 18, 1998

VERIFIED STATEMENT OF DONALD A. SWANSON

My name is Donald A. Swanson. I retired as Senior Vice President-Operations from Conrail on July 1, 1992.

I began my railroad career in the Mechanical Department of the former New York Central Railroad in 1949. Thereafter I rose through the ranks of the New York Central Railroad and the Penn Central Railroad in the Mechanical and Transportation Departments until Conrail was formed April 1, 1976. My assignment was General Manager - Atlantic Region where it was my responsibility to merge the major portions of the six (6) railroads.

In 1979, I was promoted to Vice President-Transportation with Conrail which included responsibility for the Mechanical Department. I served in that capacity until January 1, 1990 when I was promoted to Senior vice President-Operations which included the responsibilities for Transportation, Mechanical, Engineering, Customer Service, Purchasing, Security, Contracts, etc.

As an operating official who has been involved in the granting of trackage rights as well as the user of rights given my company I have been asked to comment on the effectiveness of trackage rights as opposed to ownership and control.

It should be noted that I have negotiated trackage rights with many major carriers as well as innumerable trackage rights with regional and local carriers during my career. Trackage rights can or cannot include many important factors that are necessary to any semblance of success to the carrier who may be granted those rights. These factors include:

- 1. Access to yards, terminals or storage areas on the route in question.
- 2. Reciprocal switching and the level of charges in terminal areas.
- 3. Access to present customers or future customers.
- 4. Cost allocation for use of any or all of the facilities in question.
- 5. Liability for accidents or failures.
- 6. Volume of traffic (through or local) which will be permitted.
- 7. The level of maintenance on the trackage in question.

The above are only a few of the important items that bear on any hope for competitive service for a carrier using trackage rights.

The supervision and administration of trackage rights on a single line segment is difficult, but the amount of trackage rights granted in UP/SP - BN/SF agreement is monumental - 3,968 track miles granted to BN/SF over UP/SP and 376 track miles to UP/SP over BN/SF. Actual track miles involved amounts to 6000 for the BN/SF and 4200 for the UP/SP. Many smaller carriers do not account for this mileage on their entire system.

Trackage rights, especially long distance rights, present many problems which translate into additional costs and customer dissatisfaction.

 Labor Problems. Labor problems include training and retraining of Train and Engine personnel over acquired trackage rights. They must learn the physical characteristics - the owning read's operating rules and signal system. Until this training is completed there will be a problem with crew availability and balancing. The owning road will have to furnish pilot service for crews and training on other phases of the operation. The owning road may also be faced with labor problems if the trackage rights agreement causes a change in the work rules or results in a loss of work for their own forces.

2. Equipment Problems. The carrier acquiring trackage rights may have to modify their locomotive fleet to comply with the requirements of the owning road. Items such as signal equipment, clearance dimensions and weight must be considered. If the owning road locomotives are used, the enginemen of trackage carrier must be qualified on those locomotives.

An important factor is to make certain there is a proper balance of locomotives in service on the trackage in question or subsequent delays will destroy proper utilization and more importantly will result in customer delay which may compound until balance is achieved.

Car Equipment availability to customers can only be achieved if the carrier with trackage rights has the ability to store equipment on sidings or yard trackage of the owning road. Improper Equipment Utilization (locomotives and cars) results in increased cost and subsequent inability to properly serve customers.

3. **Dispatching**. Dispatching and/or control of train movements is the responsibility of the owning carrier. The proper handling of trains is dependent on many factors such as single or multiple track territory, signaling of the line in question which can run from Manual Block rules to sophisticated computer-assisted dispatching, volume of traffic on the line both through and local, availability of sidings, length of sidings, yard availability as well as maintenance work on the line. Even with computer-assisted dispatching, priorities for trains must be set in advance, but this system does not account for delays, failures, accidents, weather problems, etc. When these incidents occur, and they always do, the dispatcher or local supervisor

must step in and set priorities. Considering the need for undivided management control of operations, the user's absence at the controlling office (as well as throughout the owner's operating territory), the effect (if not the intention) invariably positions the user at some disadvantage.

 Maintenance Problems. The users of a line by way of a trackage rights agreement are subject to the schedules and needs of the owning road when it comes to track maintenance.

Maintenance of Way work on a line is usually coordinated with the availability of track forces and equipment, the emergency nature of the work required and as little as possible disruption of traffic. The Railroad using the a line on a trackage rights basis may face delay and/or the rerouting of traffic during the pendency of work over which it cannot exercise control.

5. **Derailments/Severe Weather Problems**. These events can totally disrupt operations and it may take days to recover. Each individual railroad is struggling to get back on schedule. However, the owning railroad, which is usually in charge of restoring the line of service, certainly has the distinct advantage of setting priorities as to what service will be restored and when. The tenant must wait.

The potential problems the user of trackage rights faces are many and I have pointed out only a few.

In reviewing an article in Forbes magazine dated December 18, 1995, I noticed with interest a quote from Mr. Gerald Grinstein, then the Chairman of the Board of the BN/Santa Fe, when asked about trackage rights on UP/SP he stated "It's service with some disability - you've got track maintenance issues and dispatch issues. It's quite different from owning your own track."

Mr. Grinstein confirmed and elaborated on these views in his deposition in this proceeding. (Grinstein Deposition, pages 69-71.) He explained that trackage rights don't necessarily insure unfettered competition; that "...ownership is preferred to trackage rights, and if you own it... you can provide a better level of service then you can if its trackage rights, so there's some disability." (Grinstein Deposition, p. 69). He noted that others at Burlington Northern share his view (p. 71); and he elaborated on many of the same factors that I mentioned above, such as rate level, track conditions, dispatch, planning of meets and passes and maintenance windows, that can cause trackage rights to disadvantage the tenant. (Grinstein Deposition, p. 72.) Mr. Grinstein bolstered his view with specific examples (p. 70), and noted that BN/Santa Fe is not able to provide "efficient and compatible service" on all routes where it currently operates through trackage rights. (p. 174-75.)

I totally agree with Mr. Grinstein. Trackage rights of the scope and centrality to the tenants operation of those at issue here are a second best solution. These rights may allow BNSF to provide service, but they do not allow BNSF to provide a competitive service from the point of view of costs or customer satisfaction.

I also agree with the point made by Mr. Grinstein in his testimony (Deposition pages 176-177) that non-discrimination provisions and procedures for enforcement in a trackage rights agreement would not provide complete confidence that a tenant carrier could meet its service obligations, because the carrier can lose the customer in the time it takes to go through those procedures.

In my entire career as an Operating officer of a major carrier, I have never met another operating officer or marketing officer who did not prefer ownership and control of trackage rather than an operating agreement.

A review of UP/SP merger application indicates that even the officers of the UP and SP agree with this outlook. As an example, Mr. Richard B. Peterson, Senior Director of Interline Marketing of UP stated in Volume 2 of the merger application on Page 42, "separate railroads inevitably and inescapably have differing priorities" and on Page 43, "As was the case with UP/CNW there is still a tremendous difference in terms of <u>competitive effectiveness</u> between joint arrangements and true single line service. Here we are dealing with two railroads that for the most part have not cooperated and the single line benefits of this merger are correspondingly greater."

I find this particularly interesting since the UP and CNW were closely aligned but not competitively effective - how then can two major carriers such as UP/SP and BN/SF be effective competitors when the latter is without control of such a huge and central portion of the trackage on which they hope to provide service?

Mr. Peterson on Page 57 said "independent railroads simply do not agree to operate their basic routes and facilities in common. The reasons are the same as those that make joint line service inferior to single line service: differing priorities, railroads' desire for control of their separate destinies, and the inherent difficulty in reaching agreement on complex and ever-changing matters."

Mr. Peterson stated the problem well and I agree with him. Trackage rights and their use is complex and almost impossible to properly control. Mr. Peterson stated on Page 61 that "To the extent a railroad can provide faster, more frequent, and more reliable service, that railroad is more competitive."

If I were to add to that statement, I would then conclude the owning railroad has the tremendous advantage (of being able to control its own service) over a railroad trying to compete via trackage rights.

In his deposition in this proceeding, the UP's Mr. Peterson gave further testament to the underlying difficulty in the administration of trackage rights which historically has prevented major competitors from entering into such agreements on a broad scale. His testimony further supports the implausibility that the BN/SF trackage rights agreement was truly intended to foster vigorous competition.

We've done actually two cases where, you know, we [UP] got trackage rights on them [SP] and then they in turn got trackage rights on us...But my experience has been that two competitors, especially - its hard enough for two end-to-enu railroads to come together and do something. Its even harder for two railroads that often compete or sometimes compete to come to these agreements.

(Peterson Deposition, p. 96.) In explaining why trackage rights would not be an adequate substitute for the UP/SP merger, which is in itself an admission of the difference between trackage rights and ownership, Mr. Peterson recounted that:

...railroads just have had a history of having difficulty even agreeing to the more straight forward trackage rights swaps and so forth. And, while we keep chipping away and each year doing more haulage agreements and more trackage rights agreements, they tend to be localized and in areas where there aren't major competitive implications.

(Peterson Deposition, p. 1011.) This candid historical appraisal by one of UP's key witnesses should give the Board pause for concern as to whether the "leopard has changed

his spots." i.e. whether contrary to history, this Agreement was intended to create competition in all areas.

The effects of UP/SP merger were said to have been endorsed by more than 1000 shippers who welcomed strong competition between the two remaining major carriers BN/SF and UP/SP. It appears they assumed the competition would be on an equal footing. Yet BN/SF's operation over trackage rights will not put it on an equal footing.

As further evidence, SP's John T. Gray, Vice President of Network and Corporate Development says in Volume 1, Page 203, "Achieving fast, reliable transit times and adequate equipment supply are the fundamentals of rail service and that all elements of the all system must have adequate capacity and the ability to coordinate their operations. This requires sufficient track, terminals, locomotives and rolling stock." He also states that keeping costs low are essential to support the industry. Mr. Gray has stated the SP is unable to fill these requirements and that inferior service limits ability to attract customers.

There may be many reasons for this failure but one of them appears to be the UP's poor and improper handling of SP's trackage rights over UP trackage which would tend to increase costs and downgrade service. This is borne out by a statement in Volume 1, Page 326, by Bernard J. LaLonde, Professor in the College of Business, Ohio State University.

The most significant of these is service reliability, because it allows the shipper to reduce levels of inventory required to support customers or operations. As the level of transportation unreliability or unpredictability rises, the three most likely responses by the shipper are to accumulate additional inventory to serve as safety stock, suffer stock outages, or incur the added costs of expedited shipments. In Table 9, this process is presented as a conceptual overview. It can be seen that days of delay

actually cost money, and when the days of delay can be reduced, inventory holding costs decline and profitability improves. This does not include the cost of additional expedited shipments, special handling, and other expenses required either to fix a stock-out or to shut down and restart a plant operation.

A second requirement, and also an important one in most transportation systems, is the reduction of overall transit time. This means dock-to-dock time, or for those companies that measure order cycle time based on when they place an order, until the order is on their dock. Pressures on total order cycle time are expected to increase into the last half of the 1990s. This pressure on order cycle time will continue to create pressures on transit time. Those transport carriers that are not able to perform will lose market share. Any of the factors that delay end-to-end transit time will therefore cause a deterioration in the performance of a transportation carrier. This includes terminal congestion, delays or congestion while a movement is under load, inaccuracies in paperwork, delays in information processing, and all of the related issues that add cost by creating volatility in service reliability.

I refer at length to Mr. LaLonde's quote to verify my comments concerning the adverse effects of delay and cost to any competitive attempt which significantly depends on operations that cannot be controlled such as the trackage rights at issue here.

The reality of the problems is more than my opinion and this can be seen by reviewing the Joint Statements of R. Bradley King, UP's VP-Transportation and Michael D. Ongerth, SP's VP-Strategic Development. Both gentlemen discuss openly the conflicts between the UP and SP for over a decade caused by what SP calls discriminatory practices in handling SP trains on UP trackage. This also includes track maintenance practices and standards with both roads blaming the other. The quote on Page 15 is as follows:

The two railroads have discussed a rational reorganization of this operation for years. Superficially, this would appear to be a textbook case calling for mutual cooperation in mutual self-interest. Upon analysis, however, the issues were much more complex. Each railroad analyzed the commercial implications of shorter transit times on existing traffic flows and the effects of removing the bottleneck for its relative competitiveness. Labor issues were present, and the cost uncertainties associated with substantial revision of work assignments added to the price of the potential change. Compensation issues were vexing because the two routes different in length and maintenance complexities, and the two companies could not agree on an equitable resolution of their differences.

In reviewing the SP's opposition to UP/CNW merger in November 1993 (Union Pacific Corp., Union Pacific R.R. & Missouri Pacific R.R. Co. -- Control -- C'uc ago & North Western Transportation Co., Finance Docket No. 32133, SP-19, pp. 18, 21; SP-20, p. 170), Mr. Ongerth went into great detail expressing unsatisfactory experience with UP's administration of SP's trackage in the central corridor. He indicated SP trains were not treated equally in that corridor. (Finance Docket No. 32133, SP-20, p. 170). As I read it, it was alleged by the SP at the time that trains whether running on schedule or not were subject to unpredictable, uncontrollable delays experienced when UP preferred its own traffic at SP's expense. As a result SP stated that it could not provide a truly competitive service and labored under an extremely serious handicap when it was unable to exercise control over its service.

These statements obviously indicate why an operating officer would prefer ownership and control to being a trackage rights tenant. In these same pleadings, the SP entered statements from managers, trainmasters, dispatchers, enginemen and conductors by various line segments indicating the uncontrolled delays and costs that were incurred. Every phase of the operation objected to UP's administration of trackage rights to the SP.

Mr. King of the UP acknowledges that problems existed between UP and SP concerning trackage rights. On Page 74 of Volume 3 he states "The landlord's management must effectively instruct dispatching forces of their obligation to provide equal treatment to tenant trains. The tenants management must supply the landlord with accurate and current information about tenant operating plans and play an active role in overseeing trackage rights operations."

Mr. King has indicated the UP/SP will create a separate service unit, under the direction of a superintendent whose primary responsibility will be to administer trackage rights operations on BN/SF lines. Mr. King further states that they encourage BN/SF to take similar steps to help UP handle their trains efficiently.

I have taken the time to bring attention to quotes from interested parties who must administer these extensive trackage rights and try to create a competitive situation to the ultimate benefit of the customer and the public in general. After reviewing these comments as well as deposition testimony, the only conclusion to be reached is that UP and SP themselves found a huge problem in trying to make trackage rights equate to aggressive competition.

The problems are so great that the UP/SP's plan is to create an entire service unit to manage the BN/SF Agreement on their behalf. The BN/SF has given no indication they will take a similar action. Even if they create such an administration, it will not cure the prob'em. The Upper Management Group in the Rail Industry make agreements with the full intent of living up to the provisions of that agreement. Proper instructions are issued and middle management is so advised. But the intent and administration of trackage rights are left to day-to-day operations. In these day-to-day operations, superintendents, dispatchers, trainmasters and T & E crews make decisions based on their personal knowledge and loyalties and the demands of the moment.¹

That knowledge is based on their own railroad, their own trains, their own track and their own equipment. Therefore, even with the best of intentions, due to the lack of the on-the-ground personnel's full understanding of the tenant's operations, trains are not always treated in a way that yields the highest efficiency for the tenant, and delays and costs result as well as customer dissatisfaction. The recipient of these problems are the tenants who are operating on trackage rights.

These problems are not necessarily malicious. It is simply that the owning railroad employees are familiar with their total commitment to certain trains, or schedules, or customers. Whereas, they are not familiar with tenants' commitments or total operating plan and therefore cannot comprehend the adverse affects of delays or additional cost.

It should be clear that <u>ownership and control</u> is the answer to all these things. Ownership provides the ability to be truly competitive. An owning railroad can make commitments that it can keep to customers, the public and to its employees. Schedules can be maintained and costs can be controlled. Equipment can be better utilized and

¹ In the testimony of Mr. John Gray, an SP Vice President involved in the negotiations with BN/SF, he described the tension that often exists between the top executives of a carrier who set performance targets and goals, and the "line departments" personnel who must carry out the plans. Gray explained how this pressure from senior management creates great pressure on field level employees to do more business [for their own carrier] than they believe is possible. (Gray Deposition, P. 157-58)

maintenance programs can be coordinated in line with service requirements. If these important items are not accomplished, the cause and cure can be effected from within.

A customer's three primary needs are fast, consistent service, adequate equipment supply and reasonable rates. It is my opinion and obviously those of the principals involved in these trackage arrangements that these important principles will not be easily available to the tenant railroad -- BNSF -- here. The customers will quickly determine when service and rates are not equal and must then gravitate to the carrier that is able to perform. This will be the owning railroad and adequate competition is quickly dissipated as customers essentially become captive. This is the worst possible scenario. A situation which all regulatory bodies and the public in general should avoid.

BN/SF TRACKAGE RIGHTS AGREEMENT ON UP/SP

In reviewing BN/SF plans which appear in the UP/SP merger application, it cannot be concluded that their trackage rights implementation has been thoroughly thought out. 3,968 line miles and 6,000 track miles is a vast undertaking and requires extensive planning such as:

- What amount of service is required in order to compete? How many through trains and how many locals?
- 2. What is the capacity of the trackage involved?
- 3. Are additional facilities required yards, sidings, etc.?
- 4. Which facilities of the UP/SP can or will be shared?
- 5. Which railroad will do the switching at which customer's facility or yard location?



- 6. What are the charges for these services?
- 7. Will BN/SF equipment be compatible to the UP/SP system locomotives and signal systems on locomotives?
- 8. How will information concerning trains, equipment and customer shipments be provided to BN/SF?
- 9. Which labor agreements will have to be renegotiated to allow BN/SF employees to operate on UP/SP tracks? UP/SP is faced with the same negotiations.
- 10. How long will it take to implement in full all aspects of the trackage rights agreement?

All of the above items must also be considered by the BN/SF in allowing UP/SP to operate on BN/SF-owned trackage.

Among all of the problems BNSF will encounter in trying to be competitive while operating on the trackage rights proposed here one of the most serious considerations is the long time delay in handling the above items which could conceivably take years before full implementation. If, in fact, there are lengthy delays in the implementation many of the major traffic moves may already be moving under contracts with the carrier who has established service in place. In this case, the owning road.

According to the UP/SP - BN/SF agreement, BN/SF will have access to new industries within present switching limits of designated points listed in Exhibit "A" of the agreement and covered by reciprocal switching agreements between UP/SP and BN/SF. As I understand, Houston, one of the most important industrial centers in the country, is not a designated point in the agreement. If this is to serve as a pattern of the rights

BN/SF will have, their chances to be competitive are extremely limited. Even worse, the customers choices are equally limited.

The BN/SF submitted a plan to the Surface Transportation Board on December 29, 1995 indicating various levels of train service. BN/SF indicated to the Board that this submission was only an initial service offering and that train service will increase as traffic increases. In my opinion, if the BN/SF does not act like an aggressive competitor very quickly they will have no chance at further market penetration. If BN/SF is slow to implement and is not aggressive, they will simply be a presence in UP/SP territory not a competitor. BN/SF will have an inferior service and higher costs unless all inclusive trackage rights are improved and a detailed operating plan is established and implemented.

It is my understanding that the BN/SF and UP/SP should reach agreement by June 1, 1996. If not, either party may request that any outstanding matters may be resolved by binding arbitration in a proceeding to be completed within 60 days of its institution. If the proposed agreements require arbitration, the delay factor is set in motion and will be detrimental to the BN/SF and the customers. Thus, BN/SF plan to implement proposed trackage rights appears, at this time, to be inadequate.

DIRECTIONAL ROUTING OF TRAINS

The UP/SP operating plan will employ directional routing of trains/ segregating types of traffic on paralleled routes and creating large consolidated terminal hubs. This directional routing will include routes from St. Louis and Memphis to Houston and San Antonio and Dallas/Ft. Worth. The division of traffic by type on parallel routes between Houston and San Antonio and between Houston and New Orleans will require trains to operate in one direction over tracks now belonging to UP and in the other direction over tracks that now belong to SP.

Directional routing of trains usually looks good on paper, but in my opinion is extremely inefficient and the alleged convenience is outweighed by increased costs. The UP/SP plan may turn out to be a curse of riches i.e. too much track, too many facilities, too many employees and too many problems.

If a railroad had all of the money required to build a railroad between two major cities, they would build a single line of railroad consisting of multiple tracks, sophisticated signaling and required sidings and yard facilities. They would not build two lines of railroad with separate signaling, separate sidings and yard facilities, with separate problems such as additional road crossings, additional bridges and additional right-of-way maintenance.

Directional routing especially by types of traffic and speed of trains presents problems at the hub facilities of balancing crew assignments as well as locomotive assignments. Heavy manifest trains are, of course, slower and require additional locomotive power. Balancing may result in keeping extra locomotives and crews available or an excess of deadheading in one direction or another. Seasonality of traffic exacerbates this problem. The UP/SP plan recognizes that they have monumental problems in achieving labor agreements that are required to implement directional operation over the tracks of two former railroads. Extensive training will be required for T&E crews as well as dispatchers and track and signal maintenance personnel.

Directional routing always presents problems to maintenance procedures because the wear to rail and attachments is not necessarily even and the natural flow of the track structure itself is always in one direction. As previously mentioned, the number of bridges, culverts and road crossings are usually doubled. All of these items may seem mundane but contribute mightily to increasing costs which will probably be passed on to the customer.

In spite of well intentioned plans, directional operation will always be interrupted by unforeseen incidents such as inclement weather, derailments, accidents, maintenance work on track structure, signal problems, locomotive shortages, crew unavailability and any number of other things. These are not unusual items and the operating railroad will take advantage of their ability to operate in either direction on either line of track.

Customers have become very sophisticated and will quickly see discrepancies in schedules because of routing by type of traffic and object to the discriminatory schedule if adversely affected.

It would appear the primary reason for UP/SP's plan of directional routing is to utilize trackage "because it is there" and to perhaps prevent another carrier from accessing the major markets in large cities.

In the future, if the business environment is poor and cost reductions in the rail industry are required, the first point that will be considered is redundant trackage, duplicate trackage and/or facilities and those areas will be earmarked for elimination. UP/SP directional routing falls into this category.

VERIFICATION

Personally appeared the undersigned Donald A. Swanson, who under oath states that the information contained in the foregoing Verified Statement is true and correct.

Donald G. Swonson

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Donald A. Swanson

Sworn to and subscribed before me this 23 day of March, 1996.

Notary Public

My Commission Expires:

Notary Public, South Carolina, State At Large My Commission Expires July 30, 2002

VERIFIED STATEMENT OF DAVID T. HUNT AND WILLIAM H. ODERWALD

I. Introduction

Our names are David T. Hunt and William H. Oderwald. We are both Vice Presidents of ALK Associates, Inc. (ALK), a transportation consulting and information technology firm located in Princeton, NJ. Our respective backgrounds and qualifications are set forth below. We are both generally familiar with the proposed merger of the Union Pacific Railroad Co. and its affiliates (UP), and the Southern Pacific Transportation Co. and its affiliates (SP) (collectively, Applicants). We have been asked by Consolidated Rail Corporation (Conrail) to provide this testimony with respect to the work ALK has done at Conrail's behest with respect to the proposed merger. We understand that Conrail has authorized The Kansas City Southern Railway Company to submit this statement as part of its submission.

Specifically, we will explain how the ALK Advanced Traffic Diversion Model (ATD model) -- a computer model used to estimate the impact on railroad traffic flows of proposed changes in the rail network -- was recalibrated, in connection with the proposed UF-SP merger, and the agreement between the Applicants and the Burlington Northern Railroad Company and The Atchison, Topeka and Santa Fe Railway Company (collectively BNSF), dated September 25, 1995 and supplemented on November 18, 1995 to better reflect trackage rights operations generally. We will also present the results of a study performed with the newly recalibrated ATD model, but pursuant to ALK's traditional diversion study criteria and methods, of the proposed UP-SP merger and BNSF agreement for traffic potentially impacted by merging UP and the SP East lines. For purposes of this testimony, SP East is defined to encompass those rail lines and operations designated as such in the Verified Testimony of Lester M. Passa, being submitted by Conrail in the filing of which our testimony is a part and we will submit a copy of that diversion study as it was given to Conrail. The study shows, both graphically and in data format, that BNSF will win very little traffic on the SP East lines. The Verified Statement of Fred L. Malan, being submitted by Conrail as part of its overall testimony here, elaborates further on the diversion study results.

Before proceeding with our testimony, there follows information on our individual backgrounds and qualifications and a brief description of ALK and of the diversion model.

Mr. Hunt is a Vice President of ALK, and joined the firm in 1983. He has directed the development of a geographical equipment monitoring and carrier performance measurement system, an optimal equipment distribution model, and has led or participated in numerous strategic planning and traffic diversion studies including the BN-ATSF merger, UP control of the C&NW, ATSF-SP merger, SP-DRGW merger, and the UP-MKT merger. Since 1989, Mr. Hunt has been responsible for the calibration of several of ALK's traffic models, including the market share equation used by ALK's ATD model. Mr. Hunt holds a Master of Science in Engineering from Princeton University (1983), with a concentration in transportation studies, and a Bachelor of Science in Civil Engineering from West Virginia University (1981).

Mr. Oderwald is also a Vice President of ALK. He joined the firm in 1981, and since that time he has concentrated on the analysis of railroad and highway traffic data. He has participated in many railroad merger regulatory proceedings and other rail industry related matters. His experience includes traffic analysis relating to railroad mergers, acquisitions, and changes of control. Mr. Oderwald has participated in the analyses of the Burlington Northern-Santa Fe merger, Union Pacific control of C&NW, the Kansas City Southern-Mid South merger, the Southern Pacific - DRGW transaction, and others. Among the analytical tools he has used for these various studies is the ATD model. For the last 13 years, Mr. Oderwald has been responsible for ALK's contract with the Association of American Railroads (AAR) for processing of the Interstate Commerce Commission's Carload Waybill Sample. Mr. Oderwald attended Princeton University, where he concentrated in Economics and Mathematics.

ALK established and maintains a complete computerized model or representation of the entire U.S., Mexican, and Canadian rail network. This network is used in PC*Rail, the PTNM/GIS, the ATD model, and in processing the Carload Waybill Sample. PC*Rail allows railroads and others to calculate the mileages and other aspects of the rail routes throughout the network. The Princeton Transportation Network Model and Graphic Information System (PTNM/GIS) allows geographical analysis of railroad data for strategic planning, marketing, and other purposes. On behalf of the ICC, ALK has processed the Carload Waybill Sample since 1979.

The ATD model has been used in virtually every rail merger case and in most major rail line sales/acquisitions and other restructuring activities. The diversion model is used to estimate the impact on rail traffic flows of proposed changes in the rail network. The model can be broken down into three primary components. The model identifies geographical markets affected by a proposed change in the railroad network (e.g., a proposed merger), identifies the rail routes that can now serve the affected markets, and establishes the rail market share of traffic assigned to existing and proposed routes. A market is defined for this purpose as a railroad origin and destination pair. A rail market share is defined as the percentage of rail traffic on a route compared to the total rail traffic in the market.

Each year, upon availability of the new ICC Carload Waybill Sample, ALK calibrates the diversion model against the most recent Waybill Sample data. As part of this calibration effort, ALK determines the set of coefficients in the market share equation that provide the best overall fit between the Waybill Sample that shows actual rail moves, and the ATD model estimates of market share.

- 272 -

The remainder of our testimony will describe the recalibration of the ATD model that we performed, why it was recalibrated, and what the recalibration accomplished. The testimony also verifies the diversion studies that were conducted at the request of Conrail, utilizing the recalibrated model. Mr. Hunt had the lead role in conceptualizing the recalibration, and Mr. Oderwald took the lead in inserting the relevant data into the model and performing the Conrail-requested diversion studies. Since the work each of us did is to a large extent inextricably linked, we will submit joint testimony, although our specific tasks differed.

II. Overview of ATD Model Recalibration

Shortly after the UP-SP merger was proposed, the Applicants entered into the agreement with BNSF under which BNSF would receive certain rights that would allow it access to customers located at geographic points where the merger would reduce the number of rail competitors from two (UP and SP) to one (the merged UP/SP).

After the UP-SP merger and the Agreement with the BNSF were announced, Conrail asked ALK to conduct a diversion study with respect to the routes over which UP/SP and BNSF would compete in the SP East region. By diversion study we mean use the ATD model to estimate future traffic flows in the region.

Conrail asked us to consider how accurately the model estimates market shares for routes using trackage and/or haulage rights. ALK tested the ATD model against the 1994 ICC Carload Waybill Sample to determine the answer to that question.

III. Actual Market Share from the 1994 Waybill Sample

ALK, in conjunction with the AAR, has processed the Carload Waybill Sample for the past 13 years. To facilitate this processing, ALK maintains a computerized representation of the North American rail network. Nodes in the network represent a single freight station or aggregation of freight stations and links represent segments of track. The 1994 network contains 32,296 nodes and 31,973 links. Link attributes include distance, track quality (primary main line, secondary main line, branch lines, etc.), ownership, and trackage/haulage rights. ALK examined the relationship between actual market share of a route and the percentage of total distance that the route utilized trackage or haulage rights. The results are displayed in Figure I, which is Attachment 1 hereto.

Listed below is the volume of traffic moving on trackage/haulage rights that were illustrated in Figure I. The traffic moving on trackage/haulage is a significant amount of the total traffic analyzed.

	Total Unit Miles	Percent Trackage (Haulage
Service Type	(in millions)	Unit Mile of Total
General Merchandise	1,475	6.1%
Intermodal	4,232	4.2%
Coal/Bulk	1,258	2.5%
Auto Rack	527	6.5%

Figure I(a) is for general merchandise traffic. The average market share over all routes not using trackage/haulage rights is 46 percent. That is, of all the given rail routing options between two points (that pass over standard screens) any one of them would, on average, have a 46 percent share of the total rail traffic provided they did not use trackage and/or haulage rights. If the percentage of trackage/haulage distance to total distance is greater than zero, but less than or equal to 10 percent, the average market share drops to 34 percent. When this distance percentage is between 10 percent and 20 percent, the average market share declines to 27 percent. This decline in market share continues until an average share of 13 percent is observed for routes with a trackage/haulage distance percentage of 90 to 100 percent.

It is clear from the four traffic service types that the average market share for routes using trackage/haulage rights is significantly smaller than for routes that do not use trackage/haulage rights. It is also clear that as the percentage of distance traveled on trackage/haulage rights relative to total distance increases, market share continues to decrease. With these empirical results, ALK evaluated the ATD model to determine
whether it accurately reflected market shares for routes using trackage/haulage rights.

IV. Recalibration of Market Share for the ATD Model

Figure II (Attachment 2 hereto) shows a comparison of the actual average market share observed in the 1994 Carload Waybill Sample versus the market share estimated from the 1994 calibrated ATD model. The data set used for this analysis was the same data set used in Section III. As the percentage of trackage/haulage rights distance increases, the previously calibrated ATD model increasingly over-estimates the market share for routes using tracking/haulage rights. This can clearly be seen from the red line on the general merchandise (Figure II(a)) and intermodal (Figure II(b)) graphs.

To correct for this trackage/haulage bias in the ATD model, ALK introduced a new variable into the market share equation. This variable is the ratio of trackage/haulage rights distance to total route distance. The market share equation was recalibrated with this new trackage/haulage variable included.

For general merchandise traffic, a coefficient of -0.3 for this new variable provided the best fit when comparing the actual waybill data against the model results. The blue line in Figure II(a) shows that the ATD model market share minus the actual waybill market share now closely follows the X-axis. This indicates that the bias has been removed. Trackage/haulage rights showed a stronger impact on intermodal traffic and a coefficient of -0.4 for the new trackage/haulage variable was required. (See Figure II(b).) A comparison of the general merchandise and intermodal data (Figures I(a) and I(b)) also indicates a stronger impact on market share for intermodal traffic using trackage/haulage rights.

Although the data for coal/bulk and auto rack traffic (Figures I(c) and I(d)) showed that an increase in the trackage/haulage ratio corresponded to a reduction in average market share, no model bias could be detected for these service types in the ATD model. (See Figures II(c) and II(d).) Therefore, the coefficient for the trackage/haulage ratio was set to zero for coal/bulk and auto rack traffic.

Because this investigation of the ATD model revealed such clear results about trackage/haulage operations, we expect to use the newly calibrated model in future studies (unless, of course, we can find an even better measurement of the trackage/haulage impact, or unless we are specifically requested not to do so) since it provides a more accurate representation of market shares for traffic utilizing trackage/haulage rights.

V. Summary of ATD Model Results

The traffic base used as the formation for this study was the 1994 ICC Carload Waybill Sample, as modified to reflect changes in the railroad industry subsequent to 1994. These

- 277 -

changes include the acquisition of the C&NW by the Union Pacific and the Burlington Northern-Santa Fe merger. From this traffic base, ALK developed a traffic diversion scenario which modeled the proposed Union Pacific-Southern Pacific merger, but without the BNSF Agreement. ALK then developed a traffic diversion scenario which modeled that Agreement. All of the studies were limited to that traffic moving by rail between, on the one hand, the states of Arkansas, Louisiana and Texas, and, on the other hand, the Eastern United States and Canada. The Eastern United States includes Illinois, Kentucky, Tennessee and Alabama and all states east of these states, including Michigan (but not the Michigan upper peninsula) and excluding Wisconsin. Eastern Canada includes eastern Ontario (SPLC 04) and all provinces east of this.

The proposed Agreement includes significantly large grants of trackage rights to the BNSF. Because of this, the standard ATD model was modified (as previously described in this statement) to insure that the calibration for historical use of trackage rights would be accurately reflected in the coefficients of the diversion model market share equation. This traffic diversion study estimates the traffic diverted to BNSF in those traffic corridors identified by UP-SP as "2-to-1" points (<u>see</u> Verified Statement of Richard B. Peterson). The base traffic flows on the Union Pacific-Southern Pacific and Burlington Northern-Santa Fe are all shown in Figure III (Attachment 3 hereto) with the diversion traffic flows to the Burlington

- 278 -

Northern-Santa Fe indicated. On the basis of this traffic diversion analysis, we conclude:

For all traffic moving between points in Texas,
 Louisiana, and Arkansas and the Eastern United States, BNSF
 traffic is expected to grow a trivial amount -- by less than four
 percentage points.

For traffic originating or terminating in Texas,
 Louisiana, and Arkansas and moving to and beyond St. Louis,
 BNSF's share increases by an even more trivial one-half of one percentage point.

 For traffic between points in Texas, Louisiana, and Arkansas and the Conrail-service territory, BNSF's share rises 2.7 percentage points.

• Finally, for the traffic between Mexican gateways in the SP East territory -- which gateways handle 95 percent of all U.S.-Mexican interchange traffic -- and the Eastern U.S., BNSF's share rises again less than three percentage points.

VI. Conclusion

BNSF's share of traffic in three eastern corridors is not projected to increase in any significant way as a result of its access to new shippers at 2-to-1 points under the BNSF Agreement. The BNSF trackage/haulage operation will do little to alleviate the extraordinarily high market share concentration of the proposed Union Pacific-Southern Pacific merger in the

- 279 -

important Texas, Louisiana, Arkansas, and Mexico markets on the eastern end of the proposed merger.

VERIFICATION

Personally appeared the undersigned David T. Hunt, who under oath states that the information contained in the foregoing Verified Statement is true and correct.

Sworn to and subscribed before me this $\frac{25^{44}}{25^{44}}$ day of March, 1996.

Bartlett Notary Public

My Commission Expires:

LAURA K. BARTLETT NOTARY PUBLIC OF NEW JERSEY MY COMMISSION EXPIRES JULY 31, 2000

VERIFICATION

Personally appeared the undersigned William H. Oderwald, who under oath states that the information contained in the foregoing Verified Statement is true and correct.

William H. Oderwald

Sworn to and subscribed before me this 25^{10} day of March, 1996.

k Bartlett AIIIA

Notary Public

My Commission Expires: LAURA K. BARTLETT NOTARY PUBLIC OF NEW JERSEY MY COMMISSION EXPIRES JULY 31, 2000

Figure I

Actual Market Share as a Function of Trackage/Haulage Rights Data Source: 1994 Carload Waybill Sample



* Categories with ≤ 25 observations not displayed

Figure II Reductions of Trackage/Haulage Model Bias





1. INTRODUCTION

My name is Frank Berardino. I am the President of GRA, Inc., and an economist specializing in the transportation industry. My curriculum vitae is attached to this testimony.

2. PURPOSE OF TESTIMONY AND SUMMARY OF RESULTS

I have been asked by attorneys for the Kansas City Southern (KCS) to evaluate the financial viability of the Southern Pacific Railroad in the event it remains independent. To do this, I have applied a statistical bankruptcy model first developed by Edward Altman¹ to recent financial data for Southern Pacific Railroad. This model has been shown to be highly accurate in classifying railroads as being solvent or inscient, and in predicting future bankruptcies of railroad companies. The model has also been shown to be an effective predictor of bankruptcy outcomes in different eras, despite changes in the economy and in the railroad business.

The statistical model developed by Altman produces a so-called Z-score, which summarizes the relative financial strength of carriers. By using a sample of data that included both solvent and insolvent carriers, Altman was able to discriminate between the two groups effectively. Although the inputs into the model are financial ratios which are typically used by financial analysts, the results of the model are purely empirical. That is,

¹ Altman, Edward J., "Predicting Railroad Bankruptcies in America," <u>Bell Journal of</u> <u>Economics</u>, Vol. 4, No. 1, 1973. (All references referred to appear in the Bitliography appearing at the end of this Statement.)

the classification of railroads as healthy or unhealthy requires no individual judgment by the analyst.

My application of Altman's model suggests Southern Pacific Railroad (SP) would be financially viable if it remained independent, and would remain so in the near-term (at least two years) future.

3. APPROACH

Over the past 30 years, researchers have developed statistical models to classify companies as either financially healthy or unhealthy (either bankrupt or likely to become bankrupt). While some of these models are general in that they can be applied to businesses across several different industries, others focus on companies within a single industry. Most of these so called "bankruptcy models" base their predictions of financial states--either financially healthy or approaching or in bankruptcy--on financial measures such as liquidity, profitability and efficiency, and solvency and leverage. These financial measures are closely linked to the viability of a railroad or, for that matter any company.

Researchers develop bankruptcy models by first selecting a sample of firms that have declared bankruptcy, and then a sample of financially healthy firms used as a control group. Then, using statistical methods, they identify which financial measures best distinguish the sample of bankrupt companies from the financially healthy firms. The statistical methods they employ enable them to estimate weights that can be applied to the selected financial measures. These weights measure the relative importance of the various financial ratios in distinguishing the sample of bankrupt companies from the sample of financially healthy companies. Finally, the weights can be used to calculate a single measure-often referred to

as a Z-score--that can be used to assess the financial health of companies included in the sample. Generally, the higher the Z-score, the more financially healthy the company is; lower Z-scores indicate that companies are less financially viable and may be prone to bankruptcy. Once the model or formula for calculating the Z-score has been developed, researchers can then apply it to a sample of companies to validate models by examining how often it yields incorrect forecasts. There are two types of possible incorrect forecasts. First, the model might predict a firm will remain financially viable when it in fact goes bankrupt; this type of error is often referred to as a Type I error. Alternatively, the model might predict bankruptcy for a company, when in fact it remains financially viable; this type of error is often referred to as a Type II error.

There are several advantages to using the bankruptcy model approach. First, and perhaps most importantly, the bankruptcy models are blind to opinions and immune to errors in judgment by the analyst. Without the use of models, financial analysts face a vast array of bewildering and sometimes contradictory financial measures. The bankruptcy models, however, process large quantities of data into a single measure that serves as an indicator of financial health. The modeling approach is purely empirical. While some judgment is required for the selection of the appropriate model, the model itself assesses financial viability.

One observer, in assessing the difficulties faced by analysts in predicting bankruptcies without the use of models,

All along investment bankers, financial analysts, security analysts and auditors have been using some sort of early warning system to detect the likelihood of bankruptcy. But their system is primarily based on financial ratios of one type or another as an indication of financial strength of a company. Each ratio (or set of ratios) is examined independent of the others. Plus, it is up to the professional judgment of a financial analyst to decide what the ratios are really telling.

Jae K. Shim, Forecasting Corporate Bankruptcy, Journal of Business Forecasting, Vol. II(1), pp. 22-23 (Spring 1992).

On the other hand, the practical advantages of the bankruptcy model have been

recognized.

It has been demonstrated to be quite reliable in a variety of contexts and countries. A decade ago the use of Z-scores was virtually unheard of among practicing accountants. Today, they are used by auditors, management consultants, and courts of law, and as part of many database systems used for loan evaluation.

Gregory J. Eidleman, Z-Scores--A Guide to Failure Prediction, CPA Journal, Vol. 65(2), pp. 52-53 (1995).

A second advantage to the bankruptcy model approach is that the validity of the model can be assessed using generally accepted statistical principles. First, statistical methods are employed to identify the set of specific financial measures that best distinguish healthy firms from those likely to declare bankruptcy. Also, statistical methods are employed to assess the predictive power that the model has in classifying companies.

4. SELECTING A BANKRUPTCY MODEL

I noted earlier in my testimony that several bankruptcy models are available. Some of these models are general in that they can be applied to companies across several industries while others are tailored to specific industries.² For my analysis, I have selected a model

² See Altman (1968) and Altman, Haldeman and Narayanan (1977) for general bankruptcy models. Models designed for specific industries include those for financial institutions by Altman and Loris (1976), Altman (1977), and Pantalone and Platt (1987a and 1987b); railroads by Altman (1971); airlines by Michel and Shaked (1987); and oil and gas

developed by Professor Edward I. Altman at the University of New York. Professor Altman developed this model specifically for the railroad industry.³

There are several advantages to employing a bankruptcy model that has been developed specifically for the industry at question, some of which are obvious. First, the railroad industry exhibits several characteristics that distinguish it from some other industries such as high operating and financial leverage, a high degree of capital intensity, and cyclicality. Second, railroads have unique reporting requirements and, as a result, comprehensive accounting and financial data are available over an extended period of time. The uniformity of the accounting systems required of railroads provides a comparable set of financial and operating measures unique to this industry. Finally, a relatively large sample of past bankrupt railroads allows for comprehensive validation of the bankruptcy model.⁴

Professor Altman's railroad bankruptcy model considers the following three types of financial indicators:

- Liquidity measures
- Profitability and efficiency measures
- Solvency and leverage measures

The formula in Professor Altman's model for computing the Z-score for a railroad is as follows:

companies by Eldahrany (1986).

³ See Altman (1971).

⁴ In Harland Platt and Marjorie B. Platt, A Note on the Use of Industry-Relative Ratios in Bankruptcy Prediction, Journal of Banking and Finance, Vol. 15, pp. 1183-1194 (1991) there is an argument generally in favor of industry specific models, noting that financial ratios for companies differ across industries. $Z = 0.2003X_{14} - 0.2070X_7 + 0.0059X_{11} - 0.0647X_{10} + 0.1040X_8 + 0.0885X_6 + 0.0688X_3$ (1)

The variables in Equation 1 are defined as follows:

- X14 is equal to cash flow divided by fixed charges. Cash flow is defined by Altman as annual depreciation and amortization expense added to earnings after taxes. X14 is a measure of solvency and leverage.
- X7, a profitability and efficiency measure, is defined as the ratio of transportation expenses to operating revenue. This measure is unique to the railroad industry as a performance indicator. A relatively high ratio indicates that the railroad is operating relatively inefficiently.
- X6, which is another profitability and efficiency measure, is defined as the railroad's operating ratio. This measure is also unique to the railroad industry and, again, a high ratio indicates inefficiency. The operating ratio is calculated as the railroad's operating expenses divided by its operating revenue.
- X11, a solvency measure, is defined as earned surplus divided by total assets. This ratio is a measure of the cumulative profitability of the railroad based on its past performance.
- X10, a profitability measure, is defined as the three-year compound growth rate in operating revenues. This captures the effects of insufficient revenues given the high fixed costs that most railroads face.
- X8 is a profitability and efficiency measure defined as the ratio of income after taxes and fixed charges to operating revenue. This variable represents a measure of after tax return on sales (often referred to as a profit margin).
- X3, another profitability measure, is defined as the ratio of income before interest and taxes to total assets. This measure reflects the earning power of the railroad's assets.

Professor Altman assessed the validity of the railroad bankruptcy model using data from year-end financial statements one year prior to bankruptcy declaration. Forty-one of the 42 railroads included in the sample were correctly classified.⁵ Only one bankrupt

⁵ Professor Altman chose a Z-score cutoff of -1.465 for classifying the railroads (i.e., a Z-score lower than -1.465 indicates bankruptcy).

railroad was incorrectly misclassified as healthy, yielding a Type I error rate of 4.76 percent (i.e., 1 of 21). Since no healthy railroads were classified as bankrupt, the model produced no Type II error.

Professor Altman also assessed the validity of the model using financial data from statements two years prior to bankruptcy declaration. The results were equally impressive.

After concluding that the model was accurate for classifying railroads in the original sample, Professor Altman assessed its validity for a new sample of railroads. He selected a sample of financial data for 50 railroads over the years 1946 through 1969 using a stratified random sample design.⁶

There were no obvious Type I errors or Type II errors. None of the railroads classified as healthy subsequently went bankrupt within two years (zero Type I errors). Six of the 50 railroads had Z-scores below the bankruptcy cutoff of -1.465. Of these, two actually went bankrupt⁷, one discontinued all rail operations⁸, two merged and then went bankrupt⁹ and the sixth was owned by a larger, government-owned Canadian railway system.¹⁰ This history suggests the model was quite accurate in evaluating the stand-alone viability of railroads, and committed no definite Type II errors.

- ⁹ Boston & Albany, and Erie Railroad.
- ¹⁰ Central Vermont.

⁶ Because railroads were selected by year, the same carrier could appear more than once in this sample.

⁷ New York, New Haven & Hartford, and Lehigh Valley.

⁸ New York, Susquehanna & Western Railroad.

Finally, Altman applied the model to 55 Class I railroads as of December 31, 1970. None of the railroads classified as healthy went bankrupt within two years of the year-end 1970 financial statement; therefore there were no Type I errors. Fourteen railroads had scores below -1.465, the bankruptcy cutoff. Of these 14:

- Six had gone bankrupt by the time the article was published¹¹
- Three were controlled by larger, more solvent railroads; despite this, one ultimately went bankrupt¹²
- Of the remaining five railroads, two went bankrupt and three were merged into the Union Pacific¹³

Again, the model proved its accuracy in identifying the ability of carriers to sustain standalone viability, and committed no definite Type II errors.

The preceding suggests that the model has a very high rate of accuracy when looking forward one to two years from the date of financial statements.

a. Recalibration

The Altman model was originally applied to data for railroads from 1939 to 1970--a period of 31 years. In the present context, the same model is applied to data for 1994, the most recent year for which complete financial records are available. A natural question is whether the model needs to be recalibrated in view of the time that has passed.

¹¹ Boston & Maine, Central Railroad of New Jersey, Erie-Lackawanna Railroad, Lehigh Valley Railroad, Penn Central Transportation Company and Reading Railroad.

¹² Ann Arbor Railroad.

¹³ The bankrupt carriers were Chicago, Milwaukee, St. Paul & Pacific, and Chicago, Rock Island & Pacific; railroads merged into the UP were Chicago & Northwestern, Missouri-Kansas-Texas, and Western Pacific.

Recalibration would require having a representative sample of bankrupt and nonbankrupt railroads for the intervening years from the early 1970's to the present. The model would then be re-estimated using these new data. Unfortunately, there is not a large set of bankrupt railroads from which to develop such a model. While a number of railroads have been merged into larger systems in the intervening years, there have been few bankruptcies since the early 1970's, aside from those already anticipated by Altman's model. Therefore, recalibration is not possible.

b. Application To Recent Class I Data

I applied Altman's model to the two Class I railroads that either went bankrupt or ceased operations in the late 1980's and early 1990's. The model proved to be very accurate in predicting financial stress, as is shown in the table below:

	Delaware & Hudson	Pittsburgh & Lake Erie
Z-score	-1.85	-2.64
Z-score date	1986	1984
Bankruptcy date	1988	*
Partial shutdown		1990
Ceased operations		1992

* P&LE ceased operations and is in liquidation but never filed for judicial bankruptcy (Telephone interview March 15, 1996) Source: Appendix A

In both cases, the railroads' Z-scores were below the -1.465 score below which bankruptcy is likely. The model predicted bankruptcy for the Delaware Hudson two years before the event, and predicted stress for the Pittsburgh & Lake Erie six years before its partial shutdown.

5. APPLICATION TO 1994 RAILROAD DATA

Financial data were taken from submissions (to the Interstate Commerce Commission for the year ending December 31, 1994) made by Southern Pacific, Conrail, CSX, Norfolk Southern, Sante Fe, Burlington Northern and Union Pacific(see Appendix A). The results of the Z-score model are summarized in the following table:

1994 Z-SCORE							
Southern Pacific	.79						
Conrail	1.76						
CSX	6.35						
Norfolk Southern	5.30						
Sante Fe	2.12						
Burlington Northern	3.37						
Union Pacific	3.25						
Source: Appendix A							

The Z-scores for all seven railroads exceed the -1.465 level below which bankruptcy is likely. In interpreting the scores, one should recognize that the discriminant function classifies railroads into two groups--bankrupt and non-bankrupt. The scores do not indicate the relative financial strength, but merely whether a railroad is in one of two groups.

6. CONCLUSION CONCERNING VIABILITY OF THE SP

Based on past performance of the Altman Z-score model it appears unlikely that the SP would become insolvent if it were to remain independent. When figures for the Southern Pacific Railroad become available for the year ending December 31, 1995, the model can be applied again to verify this conclusion.

The preceding application of Altman's railroad bankruptcy model suggests that the SP is and should remain a viable railroad if it is not incorporated into the UP.

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VERIFICATION

Personally appeared the undersigned Frank J. Berardino, who under oath states that the information contained in the foregoing Verified Statement is true and correct.

Frank J. Berardino

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Sworn to and subscribed before me this $\frac{\partial}{\partial nd}$ day of March, 1996.

Cimthia E Jones Notary Public

My Commission Expires: 6/24/97

NOTARIAL SEAL CYNTHIA E. JONES. Notary Public Jenkintown Boro. Montgomery Co My Commission Exbires June 24, 1997 APPENDIX A

• 1

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	D&H 1986	P&LE 1984	SP 1994
Net Income	(\$13,527,000)	(\$11,598,000)	\$201,742,000
Decreciation	\$1,669,000	\$2,683,000	\$248,812,000
Fixed Charges	\$3,907,000	\$13,230,000	\$115,979,000
Transportation Expense	\$37,196,000	\$25,108,000	\$1,279,837,000
Operating Revenues	\$80,381,000	\$50,316,000	\$2,941,527,000
Retained Earnings	(\$24,340,000)	\$2,059,000	\$823,962,000
Total Assets	\$118,753,000	\$167,586,000	\$5,765,603,000
O/R Compound Growth	-0.095	-0.152	0.078
Operating Ratio	114.73	108.30	92.40
Balance for Fixed Charges	(\$9,620,000)	\$1,333,000	\$460,015,000
Previous Operating Revenues	\$108,354,000	\$82,641,000	\$2,348,602,000
Operating Expenses	\$92,219,000	\$54,490,000	\$2,718,027,000
Z-Score	-1.848819662	-2.640613462	0.79162965
Source: Analysis of Class I Rail	roads, Association	of American Railr	oads

1994 Z-Scores							
	Southern Pacific	Conrail	CSX	Norfolk Southern	Santa Fe	Burlington Northern	Union Pacific
Net Income	\$201,742,000	\$318,888,000	\$495,153,000	\$670,209,000	\$249,167,000	\$459,138,000	\$720,271,000
Depreciation	\$248,812,000	\$275,866,000	\$371,276,000	\$374,333,000	\$191,383,000	\$335,343,000	\$493,729,000
Fixed Charges	\$115,979,000	\$198,078,000	\$45,315,000	\$93,072,000	\$64,951,000	\$79,298,000	\$157,097,000
Transportation Expense	\$1,279,837,000	\$1,320,136,000	\$1,495,815,000	\$1,147,890,000	\$1,024,009,000	\$1,867,311,000	\$1,892,810,000
Operating Revenues	\$2,941,527,000	\$3,641,473,000	\$4,625,359,000	\$3,918,069,000	\$2,680,936,000	\$4,994,663,000	\$5,167,248,000
Retained Earnings	\$823,962,000	\$1,076,579,000	\$3,424,054,000	\$4,650,621,000	\$1,787,519,000	\$1,762,438,000	\$4,455,724,000
Total Assets	\$5,765,603,000	\$9,062,638,000	\$10,249,230,000	\$10,339,305,000	\$5,742,409,000	\$7,088,243,000	\$10,907,765,000
O/R Compound Growth	0.078	0.038	0.016	0.029	0.076	0.031	0.035
Operating Ratio	92.40	83.57	84.15	73.37	84.00	83.35	79.24
Balance for Fixed Charges	\$460,015,000	\$704,141,000	\$829,434,000	\$1,146,156,000	\$477,329,000	\$848,140,000	\$1,280,892,000
Previous Operating Revenues	\$2,348,602,000	\$3,252,000,000	\$4,415,000,000	\$3,598,000,000	\$2,153,500,000	\$4,558,650,000	\$4,662,956,000
Operating Expenses	\$2,718,027,000	\$3,043,338,000	\$3,892,232,000	\$2,874,757,000	\$2,252,035,000	\$4,163,232,000	\$4,094,723,000
Z-Score	0.791629657	1.76019581	6.348812849	5.297422224	2.118178561	3.370580252	3.25162974
Source: Analysis of Class I Railn	oads, Association of	American Railroad	ds				
Source of Previous Operating Re	venues: Moody's Tra	ansportation Manu	Ial				

Summary

- 300 -

LINE	ITEM	US	EAST	WEST	CSX	NS	CR	GTW	IC
Sum	mary (\$000)								
	A LO	\$30 808 977	\$13,095,192	\$17,713,785	\$4,625,359	\$3,918,069	\$3,641,473	\$316,422	\$593,869
1. 1	otal Operating Revenue	25 511 105	10.544.587	14,966,518	3,892,232	2,874,757	3,043,338	332,739	401,521
2.1	otal Operating Expenses	2 457 582	1 058 838	1,398,744	371,276	374,333	275,866	13,178	24,185
3. L	Depreciation	1 034 764	911 165	1.023,599	288,728	382,520	187,175	(5,476)	58,218
4. 1	otal laxes	3 301 521	1 673 185	1,718,336	452,475	682,005	411,011	(6,408)	134,102
5.1	Vet Hailroad Operating Income	3 208 343	1 585 143	1,713,200	495,153	670,209	318,888	(11,762)	112,655
6. 1	Vet Income	5.035.148	1,921,495	3,113,653	647,708	625,368	505,225	30,953	112,241
1. 0	CC Bate of Beturn(1)	NA	NA	NA	NA	NA	NA	NA	NA
0. 1		*** ***	COL EAE 012	\$33,819,129	\$10 249,230	\$10,339,305	\$9,062,638	\$636,363	\$1,258,376
9.	Total Assets .	\$65,365,041	17 042 641	20 033 589	5.597.400	5,008,237	5,857,823	613,239	865,942
10.	Total Liabilities	37,976,230	13 008,930	13,010,156	4,418,541	5,207,844	2,973,963	28,975	379,607
11. /	Average Shareholders Equity	10 68%	12 19%	13 17%	11.21%	12.87%	10.72%	DEF	29.68%
12	Return on Shareholders' Equity	12.00%	49 350	74 985	18,759	14,652	11,349	925	2,665
13.	Miles of Road Operated	123,335	84 169	105,793	29,731	24,710	24,091	2,767	2,870
14.	Average Employment	109,502	01,100						
LIN	F ITEM	ATSF	BN	CNW	KCS	\$00	UP	SP	
Sum	mary (\$000)								
	Devenue	\$2 680 936	\$4 994 663	\$905,342	\$472,487	\$551,582	\$5,167,248	\$2,941,527	
1.	Total Operating Revenue	2 252 035	4 163 232	764,497	360,067	613,937	4,094,723	2,718,027	
2.	Total Operating Expenses	101 383	335.343	47,808	42,888	38,781	493,729	248,812	
3.	Depreciation	162 245	299 397	31,562	28,457	(28,188)	393,886	136,240	
4.	Total laxes	266 656	519 204	109.348	85,638	(33,088)	680,929	89,649	
5.	Net Railroad Operating Income	200,050	459.138	84,385	43,063	(44,566)	720,271	201,742	
6.	Net Income	644 434	698 136	106.924	220,550	110,557	787,219	545,833	
7.	Capital Expenditures	044,434	000,100		NA	NA	NA	NA	
8.	ICC Rate of Return(1)	NA	NA	NA			¢10 007 765	\$5 765 603	
0	Total Assets	\$5,742,409	\$7,088,243	\$1,848,716	\$1,421,744	\$1,044,649	510,907,705	3 385 913	
10	Total Liabilities	3,198,302	4,135,232	1,661,022	1,027,949	713,120	5,912,051	2 176 936	
11	Average Shareholders' Equity	2,458,423	2,723,442	138,553	376,902	353,322	4,702,570	2,110,000	
10	Deturn on Shareholders' Equity	10.14%	16.86%	60.90%	11.43%	DEF	15.06%	9.27%	
12.	Miles of Boad Operated	8,352	22,189	5,211	2,880	5,139	17,499	19,715	
14	Average Employment	15,020	30,711	6,129	2,618	4,118	28,946	10,231	

NA: Not available at time of printing

DEF Deficit or negative value.

Note. Dollar amounts on this page are in thousands; other statistics are not

See page 4 for explanation of footnotes

Financial Results

	e item	ATSF	BN	CNW	KCS	500	UP	SP
LIN	E TIEM							
income	Statement (\$000)						CE 075 500	\$2 839 059
Operatio	ng Revenue	\$2 639 095	\$4,875,912	\$795,286	\$451,758	\$529,720	\$5,075,520	\$2,000,000
15.	Freight	0	29,647	58,067	0	0	0	0
16.	Passenger	0	0	153	0	0	0	22 831
17.	Passenger-Related	23.071	33,933	16,432	14,595	13,150	47,638	33,051
18.	Switching	0	0	0	0	0	0	24 724
19.	Water Transfers	10 957	15,910	5.407	5,354	4,081	35,942	41 135
20.	Demurrage	6 504	38,163	3,691	780	4,320	3,170	1 756
21.	Incidental	1 349	2,250	73	0	24	4,970	1,750
22.	Joint Facility - CR	1,545	444	5	0	0	0	2 040 505
23.	Joint Facility : DR	2 690 036	4 995 371	879,104	472,487	551,295	5,167,248	2,940,505
24.	Railroad Op. Revenue Exc. Gov. Transfers	2,000,930	(708)	26,238	0	287	0	2 040 505
25.	Transfers from Government Authorities	2 680 036	4 965.724	822,277	472,487	551,582	5,167,248	2,940,503
26.	Freight Service Revenue	2,000,000	4 994 663	905,342	472,487	551,582	5,167,248	2,941,527
27.	Total Railroad Operating Revenue	2,000,550	1,00 1,000	4764 407	¢260.067	\$613 937	\$4,094,723	\$2,718,027
	Dailroad Operating Expenses	\$2,252,035	\$4,163,232	\$764,497	112 420	(62 355)	1.072,525	223,500
28	Nat Bayanua from Operations	428,901	831,431	140,845	112,420	(02,000)		
29	Net neverilla nom operations							e 10 000
Other	Income and Miscellaneous Deductions	£074	\$188	\$39,715	\$628	\$1,152	\$43,248	\$13,828
30	Income from Affiliated Companies	\$9/4	0	58.022	4,704	392	4,300	0
31	Dividends	0	100	(18 307)	(4,076)	760	38,948	13,828
32	Equity in Earnings (Losses)	974	22 109	52 790	4,620	11,510	243,813	353,416
33	Total Other Income	75,888	32,190	5 5 10	6.207	876	35,446	116,901
34	Miscellaneous Deductions	27,460	15,489	188 125	110,833	(51,721)	1,280,892	460,015
35	Income Before Fixed Charges	477,329	848,140	100,120	1.0,000			
00							COD 450	\$97 595
Fixed	Charges	\$42 868	\$68,114	\$65,763	\$42,636	\$19,573	\$89,450	97 595
36	5. Interest on Funded Debt	42,868	68.114	65,763	42,636	19,573	89,450	57,555
37	7. Fixed Interest Not in Default	42,000	0	0	0	0	0	12.073
38	3. Interest in Default	21 701	7 192	1,698	(3,395)	1,460	66,494	5 211
39	9. Interest on Unfunded Debt	21,791	3 992	4,717	72	0	1,153	5,311
40	Amortization of Discount on Funded Debt	292	79 298	72,178	39,313	21,033	157,097	115,979
4	1. Total Fixed Charges	64,951	19,230			(\$72 754)	\$1 123,795	\$344,036
	the Fired Charges	\$412.378	\$768,842	\$115,947	\$71,520	(\$12,154)	9 638	(
4:	2. Income Alter Fixed Charges	966	0	0	0	0	0,050	(
4:	3. Contingent Interest	0	0	0	0	0		
4	A Unusual or infrequent items on							

Financial Results

Life ITEM Proj. En. Balance Sheet (Continued) (\$000) Liabilities Score and Labilities Score and Lab			ATSE	BN	CNW	KCS	500	UP	SP
Balance Sheet (Continued) (\$000) Liabilities Current Liabilities \$\$688.799 \$\$1.084.495 \$\$268.067 \$\$177.496 \$\$22.878 \$\$877.575 \$\$904.01 7.3. Accounts Payable \$\$2.867 \$\$177.496 \$\$22.878 \$\$877.575 \$\$904.01 7.4. Taxes Accured \$\$2.827 \$\$1.084.495 \$\$2.827 \$\$3.62.370 \$\$7.8 \$\$2.827 \$\$3.62.370 \$\$7.893 7.8. Funded Debt Unmatured \$\$2.929 \$\$2.827 \$\$3.62.370 \$\$7.893 7.8. Funded Debt Unmatured \$\$2.929 \$\$2.827 \$\$3.62.370 \$\$3.62.370 \$\$3.82.370 \$\$3.82.370 \$\$3.82.370 \$\$3.82.370 \$\$3.62.370 \$\$3.62.370 \$\$3.62.370 \$\$3.62.370 \$\$3.62.370 \$\$3.62.370 \$\$3.62.370 \$\$3.62.370	LINE	ITEM							
Libbilities S688.79 \$1.084.495 \$268.07 \$177,496 \$232.678 \$677.575 \$904.01 7.3 Accounts Payable 37.850 114.647 19.823 7.059 13.719 123.872 31.66 7.4 Taxes Accrued 37.850 114.647 19.823 7.059 13.719 123.872 31.66 7.5 Other Current Liabilities 42.255 63.778 1.449 99 39.784 2.661 42.55 7.6 Equip Obs & Other Debt Due Within 1 Yr 176.960 115.430 72.661 16.420 61.28 66.27 60.83 7.7 Total Current Liabilities \$31.993 \$695.018 \$614.069 \$5.278 \$2.827 \$362.370 \$78.50 7.8 Funded Debt Unmatured 429.625 32.929 20.192 106.432 3.281 701.464 278.62 8.0 Debt in Default 0 0 0 0 0 0 0 0 0 0 0 0 0 <t< td=""><td>Balance</td><td>Sheet (Continued) (\$000)</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	Balance	Sheet (Continued) (\$000)							
Current Liabilities \$688,799 \$1,084,495 \$268,067 \$177,496 \$232,878 \$577,575 \$904,011 73. Accounts Payable 37,650 114,647 19,823 7,059 13,719 123,872 31,69 74. Taxes Accrued 37,650 114,647 19,823 7,059 13,719 123,872 31,69 75. Other Current Liabilities 42,295 63,778 1,449 99 39,784 2,661 66,542 60,83 76. Equiponent Liabilities 945,904 1,378,350 362,000 201,074 292,509 1,01,0464 278,57 79. Equipment Obligations 3,755 39,802 15,144 6,772 7,314 174,627 3261 81. Obbit in Defauit 0	Liabilitie	5							
73. Accounts Payable 2000,793 114,647 19,823 7,059 13,719 123,872 31,69 74. Taxes Accrued 37,850 114,647 19,823 7,059 13,719 123,872 31,69 75. Other Current Liabilities 42,295 63,778 1,449 99 39,784 2,661 42,55 76. Equip. Obs & Other Det Due Within 1 Yr 176,690 115,430 72,661 16,420 6,128 66,542 60,83 77. Total Current Liabilities 945,904 1,378,350 362,000 201,074 292,509 1,070,670 1,039,10 78. Funded Debt Unmatured \$31,993 \$695,018 \$614,069 \$5,278 \$2,827 \$362,370 \$78,93 80. Capital Lease Obligations 3,755 39,382 15,144 6,772 7,314 174,662 278,50 81. Debt in Default 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 104,97 705,276 252,063 200,300 104,077 7,05,204 1,049,86 613,44 64 <	Curre	ent Liabilities	¢c00 700	\$1 084 495	\$268,067	\$177,496	\$232,878	\$877,575	\$904,016
74. Taxes Accured 37.030 63.778 1.449 99 39.784 2.681 42.35 75. Other Current Liabilities 42.95 63.778 1.449 99 39.784 2.681 42.35 76. Equip. Obs & Other Debt Due Within 1 Yr 176.960 115.430 72.661 16.420 6.128 66.542 60.83 77. Total Current Liabilities 945,904 1.378,350 362,000 201,074 292,509 1,070,670 1,039,10 78. Funded Debt Unmatured \$31,993 \$695,018 \$614,069 \$5,278 \$2,827 \$362,370 \$78,93 79. Equipment Obligations 3.755 39.382 15,144 6,772 7,314 174,627 325,65 80. Capital Lease Obligations 0 </td <td>73. /</td> <td>Accounts Payable</td> <td>37 850</td> <td>114 647</td> <td>19,823</td> <td>7,059</td> <td>13,719</td> <td>123,872</td> <td>31,698</td>	73. /	Accounts Payable	37 850	114 647	19,823	7,059	13,719	123,872	31,698
75. Other Current Liabilities 42.293 105.430 72.661 16.420 6.128 66.542 60.53 76. Equip. Obs. & Other Debt Due Within 1 Yr 176.960 115.430 72.661 16.420 292.509 1,070.670 1,039,10 77. Total Current Liabilities 945.904 1,378.350 362,000 201.074 292.509 1,070.670 70.93,10 Noncurrent Liabilities 98. Funded Debt Unmatured \$31.993 \$695.018 \$614.069 \$5.278 \$2.827 \$362.370 \$78.50 90. Capital Lease Obligations 3.755 39.382 15.144 6.772 7.314 174.6427 225.65 80. Capital Lease Obligations 3.755 39.382 15.144 6.772 7.314 174.647 276.6204 1.049.66 81. Debt in Default 0 <td< td=""><td>74.</td><td>Taxes Accrued</td><td>37,050</td><td>63 778</td><td>1,449</td><td>99</td><td>39,784</td><td>2,681</td><td>42,554</td></td<>	74.	Taxes Accrued	37,050	63 778	1,449	99	39,784	2,681	42,554
76. Equip Obs & Other Debt Due Within 1 Y1 178,350 1,378,350 362,000 201,074 292,509 1,070,670 1,039,10 77. Total Current Liabilities 945,904 1,378,350 362,000 201,074 292,509 1,070,670 1,039,10 77. Total Current Liabilities \$31,993 \$695,018 \$614,069 \$5,278 \$2,827 \$362,370 \$78,50 78. Funded Detb Ummatured 429,625 32,929 20,192 106,492 3,281 701,464 278,55 80. Capital Lease Obligations 3,755 39,382 15,144 6,772 7,314 174,627 325,65 83. Accounstate Delerred Income Tax Credits 923,663 1,420,765 252,063 200,300 104,077 2,706,204 1,049,66 84. Other Long Term L'abilities 2,252,398 2,756,882 1,299,022 826,875 420,611 4,841,381 2,346,86 85. Total Noncurrent L abilities \$3,198,302 \$4,135,232 \$1,661,022 \$10,27,949 \$713,120 \$5,912,051 \$3,385,9 866 Total Liabilities \$3,198,302 \$4,135,232 \$1,661,022 \$10,27,949 \$713,120	75.	Other Current Liabilities	42,295	115 430	72,661	16,420	6,128	66,542	60,837
77. Total Current Liabilities 945,004 1,016,000 Noncurrent Liabilities \$31,993 \$695,018 \$614,069 \$5,278 \$2,827 \$362,370 \$78,93 78. Funded Debt Unmatured \$31,993 \$695,018 \$614,069 \$5,278 \$2,827 \$362,370 \$78,93 79. Equipment Obligations 3,755 39,382 15,144 6,772 7,314 174,627 325,653 80. Capital Lease Obligations 3,755 39,382 15,144 6,772 7,314 174,627 325,653 81. Debt in Default 0	76.	Equip. Obs. & Other Debt Due Within 1 Yr	045.004	1 378 350	362,000	201,074	292,509	1,070,670	1,039,105
Noncurrent Liabilities \$31,993 \$695,018 \$614,069 \$5,278 \$2,827 \$362,370 \$78,937 78 Equipment Obligations 429,625 32,929 20,192 106,492 3,281 701,464 278,50 80. Capital Lease Obligations 3,755 39,382 0<	77.	Total Current Liabilities	945,904	1,070,000					
Torrel Funded Debt Unmatured \$31,993 \$685,018 \$31,093 \$685,018 \$31,093 \$685,018 \$31,093 \$20,292 106,492 3,281 701,464 278,56 79. Equipment Obligations 429,625 32,929 20,192 106,492 3,281 701,464 278,56 80. Capital Lease Obligations 0 <td>Non</td> <td>surrent Liabilities</td> <td></td> <td></td> <td>0204050</td> <td>\$5.278</td> <td>\$2,827</td> <td>\$362,370</td> <td>\$78,938</td>	Non	surrent Liabilities			0204050	\$5.278	\$2,827	\$362,370	\$78,938
79 Equipment Obligations 429,625 32,929 20,192 10,192 7,314 174,627 325,65 80 Capital Lease Obligations 3,755 39,882 15,144 6,772 7,314 174,627 325,65 81 Debt in Default 0 0 0 0 0 0 0 82 Accounts Payable Alfiliated Companies 342 0 252,227 478,536 178,641 193,981 44 82 Accounts Payable Alfiliated Companies 342 0 252,227 478,536 178,641 193,981 44 83 Accumulated Deferred Income Tax Credits 923,663 1,420,765 252,603 200,300 104,077 2,706,204 1,049,86 84 Other Long Term L'abilities 2,252,398 2,756,882 1,299,022 826,875 420,611 4,841,381 2,346,86 86 Total Liabilities \$3,198,302 \$4,135,232 \$1,661,022 \$1,027,949 \$713,120 \$5,912,051 \$3,385,9 Shareholders' Equity Sp51,639 \$0 \$57,514 <	78	Funded Debt Unmatured	\$31,993	\$695,018	30 102	106 492	3,281	701,464	278,505
80. Capital Lease Obligations 3,755 39,362 10,101 0 0 0 0 0 81. Debt in Default 0 0 0 252,227 478,536 178,641 193,981 44 82. Accounts Payable Alfiliated Companies 342 0 252,227 478,536 178,641 193,981 44 83. Accumulated Deferred Income Tax Credits 923,663 1,420,765 252,063 200,300 104,077 2,706,204 613,44 84. Other Long-Term L abilities 863,020 568,768 145,327 29,497 124,471 702,735 613,44 85. Total Noncurrent L abilities 2,252,398 2,756,882 1,299,022 826,875 420,611 4,841,381 2,346,86 86. Total Liabilities \$3,198,302 \$4,135,232 \$1,661,022 \$1,027,949 \$713,120 \$5,912,051 \$3,385,9 Shareholdera' Equity 53,198,302 \$4,135,232 \$1,661,022 \$1,027,949 \$713,120 \$224,288 \$424,8 88. Common Stock 1 951,639 0 36,514 \$246,176 \$224,288 \$424,8 <	79	Equipment Obligations	429,625	32,929	15 144	6.772	7,314	174,627	325,655
81. Debt in Default 0 0 0 252,227 478,536 178,641 193,981 44 82. Accounts Payable Affiliated Companies 342 0 252,267 270,000 104,077 2,706,204 1,049,88 83. Accumulated Deferred Income Tax Credits 923,663 1,420,765 252,063 200,300 104,077 2,706,204 1,049,88 84. Other Long Term L'abilities 863,020 568,788 145,327 29,497 124,471 702,735 613,44 85. Total Noncurrent L'abilities 2,252,398 2,756,882 1,299,022 826,875 420,611 4,841,381 2,346,80 86. Total Liabilities \$3,198,302 \$4,135,232 \$1,661,022 \$1,027,949 \$713,120 \$5,912,051 \$3,385,9 Shareholders' Equily 87. Capital Stock \$1 \$951,639 \$0 36,514 246,176 \$224,288 \$465,66 88. Common Stock 1 951,639 \$0 36,514 246,176 \$224,288 \$465,66 90. Discount on Capital Stock 0 0 0 0 0 0 0	80.	Capital Lease Obligations	3,755	39,382	0	0	0	0	0
82. Accounts Payable Affiliated Companies 342 345 345 345 346 3	81.	Debt in Default	0	0	252 227	478,536	178,641	193,981	449
83. Accumulated Deferred Income Tax Credits 923.663 1,120.03 1,120.03 1,299.023 29,497 124,471 702,735 613,44 84. Other Long Term Labilities 863.020 568.768 1,299,022 826.875 420,611 4,841,381 2,346,80 85. Total Noncurrent Labilities 2,252.398 2,756,882 1,299,022 826,875 420,611 4,841,381 2,346,80 86. Total Liabilities \$3,198,302 \$4,135,232 \$1,661,022 \$1,027,949 \$713,120 \$5,912,051 \$3,385,9 Shareholders' Equity 87. Capital Stock \$1 \$951,639 \$0 \$57,514 \$246,176 \$224,288 \$465,65 87. Capital Stock 1 951,639 \$0 36,514 246,176 224,288 \$462,65 88. Common Stock 0	82.	Accounts Payable Affiliated Companies	342	1 420 765	252.063	200,300	104,077	2,706,204	1,049,858
84. Other Long. Term L 'abilities 363,020 306,703 1,299,022 826,875 420,611 4,841,381 2,346,81 85. Total Noncurrent L abilities 2,252,398 2,756,882 1,299,022 826,875 420,611 4,841,381 2,346,81 86. Total Liabilities \$3,198,302 \$4,135,232 \$1,661,022 \$1,027,949 \$713,120 \$5,912,051 \$3,385,9 Shareholders' Equity 87. Capital Stock \$1 \$951,639 \$0 \$57,514 \$246,176 \$224,288 \$465,66 88. Common Stock 1 951,639 0 36,514 246,176 \$224,288 \$42,88 89. Preferred Stock 0 0 0 0 0 0 0 40,7 90. Discount on Capital Stock 0 0 0 0 0 0 0 1,583 92. Retained Earnings 1,737,519 1,762,438 (71,532) 310,605 85,353 4,454,141 823,99 93. Appropriated 1,704,304 1,762,438 (71,532) 310,605 85,353 4,454,141 823,99 94	83.	Accumulated Deferred Income Tax Credits	923,663	568 788	145.327	29,497	124,471	702,735	613,403
85. Total Noncurrent Libilities 2,252,398 2,730,000 1,000,000 \$713,120 \$5,912,051 \$3,385,9 86. Total Liabilities \$3,198,302 \$4,135,232 \$1,661,022 \$1,027,949 \$713,120 \$5,912,051 \$3,385,9 Shareholders' Equity \$1 \$951,639 \$0 \$57,514 \$246,176 \$224,288 \$465,66 87. Capital Stock 1 951,639 0 36,514 246,176 224,288 424,88 88. Common Stock 0 0 0 21,000 0 0 40,77 99. Discount on Capital Stock 0 0 0 259,226 29,463 0 315,702 1,090,1 91. Additional Capital 756,587 238,934 259,226 29,463 0 0 1,583 92. Retained Earnings 1,737,519 1,762,438 (71,532) 310,605 85,353 4,454,141 823,99 93. Appropriated 83,215 0 0 0 0 0 0 94. Unappropriated 1,704,304 1,762,438 (71,532) 310,605 85,353 4,4	84.	Other Long-Term L'abilities	863,020	2 756 882	1,299,022	826,875	420,611	4,841,381	2,346,808
86. Total Liabilities \$3,198,302 \$4,135,232 \$1,661,022 \$1,027,949 \$11,01,100 Contract Shareholders' Equity \$1 \$951,639 \$0 \$57,514 \$246,176 \$224,288 \$465,66 87. Capital Stock 1 951,639 0 36,514 246,176 \$224,288 \$424,8 88. Common Stock 0 0 0 36,514 246,176 \$224,288 \$424,8 99. Preferred Stock 0 0 0 0 21,000 0 0 40,77 90. Discount on Capital Stock 0	85.	Total Noncurrent Liabilities	2,252,390	2,750,002		C1 007 040	\$713 120	\$5,912,051	\$3,385,913
Shareholders' Equity \$1 \$951,639 \$0 \$57,514 \$246,176 \$224,288 \$465,66 87. Capital Stock 1 951,639 0 36,514 246,176 224,288 424,8 88. Common Stock 0 0 0 21,000 0 0 40,77 90. Discount on Capital Stock 0	86.	Total Liabilities	\$3,198,302	\$4,135,232	\$1,661,022	\$1,027,949	\$715,120	•••••	
Shareholder's Equity \$1 \$951,639 \$0 \$57,514 \$246,176 \$224,288 424,8 87. Capital Stock 1 951,639 0 36,514 246,176 224,288 424,8 88. Common Stock 0 0 0 21,000 0 0 40,7 89. Preferred Stock 0 0 0 0 0 0 0 0 90. Discount on Capital Stock 0 0 0 0 0 0 0 0 91. Additional Capital 756,587 238,934 259,226 29,463 0 315,702 1,090,1 92. Retained Earnings 1,737,519 1,762,438 (71,532) 310,605 85,353 4,454,141 823,9 93. Appropriated 1,704,304 1,762,438 (71,532) 310,605 85,353 4,454,141 823,9 94. Unappropriated 0 </td <td></td> <td>Ideas' Equity</td> <td></td> <td></td> <td></td> <td></td> <td>COAG 176</td> <td>\$224 288</td> <td>\$465,602</td>		Ideas' Equity					COAG 176	\$224 288	\$465,602
87. Capital Stock 1 951,639 0 38,514 240,170 12,000 0 40,77 88. Common Stock 0 0 0 0 21,000 0 0 40,77 89. Preferred Stock 0 0 0 0 0 0 0 0 0 90. Discount on Capital Stock 0 0 0 0 0 0 0 0 0 1,99,1 91. Additional Capital 756,587 238,934 259,226 29,463 0 315,702 1,090,1 92. Retained Earnings 1,737,519 1,762,438 (71,532) 310,605 85,353 4,455,724 823,9 93. Appropriated 1,704,304 1,762,438 (71,532) 310,605 85,353 4,454,141 823,9 94. Unappropriated 1,704,304 1,762,438 (71,532) 310,605 85,353 4,454,141 823,9 95. Net Unrealized Loss Noncur. Mkt. Eq. Sec. 0 0 0 0 0 0 0 96. Treasury Stock 2,544,107 2,953,011 187,694 <td>Sharen</td> <td>Carital Stock</td> <td>\$1</td> <td>\$951,639</td> <td>\$0</td> <td>\$57,514</td> <td>246,176</td> <td>224,288</td> <td>424,876</td>	Sharen	Carital Stock	\$1	\$951,639	\$0	\$57,514	246,176	224,288	424,876
88 Common Stock 0 0 0 21,000 0 89 Preferred Stock 0 0 0 0 0 0 90. Discount on Capital Stock 0 0 0 0 0 0 315,702 1,090,1 91. Additional Capital 756,587 238,934 259,226 29,463 0 315,702 823,9 92. Retained Earnings 1,787,519 1,762,438 (71,532) 310,605 85,353 4,455,724 823,9 93. Appropriated 1,704,304 1,762,438 (71,532) 310,605 85,353 4,454,141 823,9 94. Unappropriated 1,704,304 1,762,438 (71,532) 310,605 85,353 4,454,141 823,9 95. Net Unrealized Loss Noncur. Mkt. Eq. Sec. 0 0 0 0 0 0 0 0 96. Treasury Stock 2,544,107 2,953,011 187,694 393,795 331,529 4,995,714 2,379,6 97. Net Stockholders' Equity 2,542,409 \$7,088,243 \$1,848,716 \$1,421,744 \$1,044,649 \$10,9	87.	Capital Slock	1	951,639	0	36,514	240,170	0	40,726
89. Preferred Stock 0 0 0 0 0 0 0 0 0 1,090,1 90. Discount on Capital Stock 756,587 238,934 259,226 29,463 0 315,702 1,090,1 91. Additional Capital 1,737,519 1,762,438 (71,532) 310,605 85,353 4,455,724 823,9 92. Retained Earnings 1,737,519 1,762,438 (71,532) 310,605 85,353 4,454,141 823,9 93. Appropriated 1,704,304 1,762,438 (71,532) 310,605 85,353 4,454,141 823,9 94. Unappropriated 0 0 0 0 0 0 0 95. Net Unrealized Loss Noncur. Mkt. Eq. Sec. 0	88.	Common Stock	0	0	0	21,000	0	0	0
90. Discount on Capital clock 756,587 238,934 259,226 29,463 0 0 91 91. Additional Capital 1,737,519 1,762,438 (71,532) 310,605 85,353 4,455,724 823,9 92. Retained Earnings 1,737,519 1,762,438 (71,532) 310,605 85,353 4,454,141 823,9 93. Appropriated 1,704,304 1,762,438 (71,532) 310,605 85,353 4,454,141 823,9 94. Unappropriated 1,704,304 1,762,438 (71,532) 310,605 85,353 4,454,141 823,9 95. Net Unrealized Loss Noncur. Mkt. Eq. Sec. 0 </td <td>89.</td> <td>Discount on Canital Slock</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>315,702</td> <td>1,090,126</td>	89.	Discount on Canital Slock	0	0	0	0	0	315,702	1,090,126
91. Additional Capital 1,737,519 1,762,438 (71,532) 310,605 0,605 1,583 92. Retained Earnings 83,215 0 0 0 0 1,583 93. Appropriated 1,704,304 1,762,438 (71,532) 310,605 85,353 4,454,141 823,9 94. Unappropriated 1,704,304 1,762,438 (71,532) 310,605 85,353 4,454,141 823,9 95. Net Unrealized Loss Noncur. Mkt. Eq. Sec. 0 0 0 0 0 0 96. Treasury Stock 0 0 0 333,795 331,529 4,995,714 2,379,6 97. Net Stockholders' Equity 2,544,107 2,953,011 187,694 393,795 331,529 4,995,714 2,379,6 98. Total Liabilities and Shareholders' Equity \$5,742,409 \$7,088,243 \$1,848,716 \$1,421,744 \$1,044,649 \$10,907,765 \$5,765,6 98. Total Liabilities and Shareholders' Equity \$5,742,409 \$7,088,243 \$1,848,716 \$1,421,744 \$1,044,649 \$10,907,765 \$5,765,6	90.	Additional Capital	756,587	238,934	259,226	29,403	85 353	4.455,724	823,962
92. Herained Lamings 83,215 0 0 0 0 85,353 4,454,141 823,9 93. Appropriated 1,704,304 1,762,438 (71,532) 310,605 85,353 4,454,141 823,9 94. Unappropriated 1,704,304 1,762,438 (71,532) 310,605 85,353 4,454,141 823,9 95. Net Unrealized Loss Noncur. Mkt. Eq. Sec. 0 0 0 0 0 0 96. Treasury Stock 0 0 0 393,795 331,529 4,995,714 2,379,6 97. Net Stockholders' Equity 2,544,107 2,953,011 187,694 393,795 331,529 4,995,714 2,379,6 98. Total Liabilities and Shareholders' Equity \$5,742,409 \$7,088,243 \$1,848,716 \$1,421,744 \$1,044,649 \$10,907,765 \$5,765,65 98. Total Liabilities and Shareholders' Equity \$5,742,409 \$7,088,243 \$1,848,716 \$1,421,744 \$1,044,649 \$10,907,765 \$5,765,65	91.	Retained Earnings	1,737,519	1,762,438	(71,532)	310,005	0,000	1,583	0
93. Appropriated 1,704,304 1,762,438 (71,532) 310,603 00,005 94. Unappropriated 0 0 0 0 0 0 0 95. Net Unrealized Loss Noncur. Mkt. Eq. Sec. 0 0 0 0 0 0 0 96. Treasury Stock 0 0 2,544,107 2,953,011 187,694 393,795 331,529 4,995,714 2,379,6 97. Net Stockholders' Equity 2,544,107 2,953,011 187,694 393,795 331,529 4,995,714 2,379,6 98. Total Liabilities and Shareholders' Equity \$5,742,409 \$7,088,243 \$1,848,716 \$1,421,744 \$1,044,649 \$10,907,765 \$5,765,6	92.	Appropriated	83,215	0	0	210 605	85 353	4,454,141	823,962
94. Onappropriates 94. Onappropriates 95. Net Unrealized Loss Noncur. Mkt. Eq. Sec. 0 <	93.	Upappropriated	1,704,304	1,762,438	(71,532)	310,005	00,000	0	0
95. Net Ontelaized control 200 00 0 00 0,107 96. Treasury Stock 97. Net Stockholders' Equity 98. Total Liabilities and Shareholders' Equity \$5,742,409 \$7,088,243 \$1,848,716 \$1,421,744 \$1,044,649 \$10,907,765 \$5,765,6 \$1,848,716 \$1,421,744 \$1,044,649 \$10,907,765 \$5,765,60 \$1,848,716 \$1,421,744 \$1,044,649 \$10,907,765 \$607,80 \$10,907,765 \$10,907,765 \$10,907,765 \$10,907,765 \$10,907,765 \$10,907,765 \$10,907,765 \$10,907,765 \$11,914,4300 \$10,92,579 \$12,42,4600 \$131,174	94.	Not Uprealized Loss Noncur. Mkt. Eq. Sec.	0	0	0	3 787	0	0	0
90. Treastry closers' Equity 2,544,107 2,953,011 167,094 000,000 97. Net Stockholders' Equity 2,544,107 2,953,011 167,094 000,000 98. Total Liabilities and Shareholders' Equity \$5,742,409 \$7,088,243 \$1,848,716 \$1,421,744 \$1,044,649 \$10,907,765 \$5,765,600 98. Total Liabilities and Shareholders' Equity \$5,742,409 \$7,088,243 \$1,848,716 \$1,421,744 \$1,044,649 \$10,907,765 \$5,765,600 98. Total Liabilities and Shareholders' Equity \$5,742,409 \$7,088,243 \$1,848,716 \$1,421,744 \$1,044,649 \$10,907,765 \$5,765,600 98. Total Liabilities and Shareholders' Equity \$5,742,409 \$7,088,243 \$1,848,716 \$1,421,744 \$1,044,649 \$10,907,765 \$5,765,600 99. (\$10,907,765 \$1,900 \$1,900 \$1,900 \$1,900 \$1,900 \$1,900 \$1,900 99. (\$10,900 \$1,900 \$1,900 \$1,900 \$1,900 \$1,900 \$1,900 99. (\$10,900 \$1,900 \$1,900 \$1,900 \$1,900 \$1,900 \$1,900 99. (\$10,900 \$1,900 \$1,900 \$1,900	95.	Treasury Stock	0	0	197 694	393,795	331,529	4,995,714	2,379,690
98. Total Liabilities and Shareholders' Equity \$5,742,409 \$7,088,243 \$1,848,716 \$1,421,744 \$1,044,649 \$10,907,765 \$5,705,000,000,000,000,000,000,000,000,00	97	Net Stockholders' Equity	2,544,107	2,953,011	107,034	000,		£10 007 765	\$5 765 603
(\$404.420) (\$365.289) (\$72,579) (\$42,460) (\$186,776) (\$131,174) (\$607,6	0.0	Total Lighilities and Shareholders' Equity	\$5,742,409	\$7,088,243	\$1,848,716	\$1,421,744	\$1,044,649	\$10,907,705	(\$607.920
00 Nat Working Capital (\$494,459) (\$500,200) (98	Not Working Capital	(\$494,439)	(\$365,289)	(\$72,579)	(\$42,460)	(\$186,776)	(\$131,174)	(\$007,820

Page 41

Financial Results

1 111	E ITEM	ATSF	BN	CNW	KCS	500	UP	SP
Total O	perating Expense Breakdown (\$000)							
Way and	Structures	\$00 515	\$248 228	\$37,482	\$29,650	\$27,281	\$271,364	\$173,821
147.	Depreciation	252 805	564 680	108.513	43,965	92,232	317,120	245,305
148.	All Other	343 320	812.908	145,995	73,615	119,513	588,484	419,126
149.	Total Way and Structures	343,320	012,000					
Equipme	ent				CO1 705	\$43 367	\$363 743	\$277 195
150.	Locomotive, Total	\$263,187	\$390,879	\$79,311	\$21,795	1 020	104 079	47 881
151.	Locomotive Depreciation	61,468	15,639	2,203	3,610	1,039	259 664	229 314
152	All Other Locomotive Expense	201,719	375,240	77,108	18,185	41,420	638 231	371 742
153.	Freight Car, Total	292,983	450,589	102,034	49,682	109,203	71 747	26 313
154	Freight Car Depreciation	26,508	22,555	5,849	5,750	1,525	EEE 494	345 429
155	All Other Freight Car Expense	266,475	428,034	96,185	43,932	101,738	155 4404	02 169
156	Other Equipment, Total	126,040	176,118	24,415	11,897	14,178	155,440	797
157	Other Equipment Depreciation	12,892	48,921	2,274	3,878	2,136	40,539	741 106
158.	Total Equipment	682,210	1,017,586	205,760	83,374	166,708	1,157,414	741,100
Transpo	ortation						C1 004 539	\$992 470
159	Transportation - Train Operations	\$685,387	\$1,173,144	\$218,729	\$100,392	\$157,612	\$1,294,530	222 372
160	Transportation - Yard Operations	125,832	333,476	63,126	35,250	61,771	200,102	202,572
161	Lunsportation - Train and Yard Common	13,553	12,827	13,366	1,250	2,161	54,644	20,015
162	Specialized Service Operations	147,622	191,526	8,563	4,034	7,929	95,828	106 686
163	Administrative Support Operations	51,615	156,338	30 168	5,849	18,684	101,030	1 270 837
164.	Total Transportation	1,024,009	1,867,311	331,952	146,775	248,157	1,892,810	1,2/9,03/
General	and Administrative					\$70 FED	\$456.015	\$277 958
165.	General and Administrative	\$202,496	\$465,427	\$80,790	\$56,303	\$19,559	\$450,015	\$£11,530
Total				¢764 407	\$260.067	\$613 937	\$4.094.723	\$2,718,027
166.	Total Railroad Operating Expenses	\$2,252,035	\$4,163,232	\$764,497	\$300,007	\$010,007	1,001,120	

MOODY'S TRANSPORTATION MANCAL

INCOME ACCOUNTS

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Comparative Statement of Income and Profit and Loss, Years Ended Dec. 31

(Taken from reports filed with Interstate Commerce Commission)

		(in :	housands of	ioliars)	1990	21989	:988	1987	1986
Operating Revenues:									
Freight			2.236.247	2.226.570	2,302.582	2.230.406	1,351,094	1.343.455	1,500.089
Passenker		********	9.845	10.005	10.145	13.786	12.001	13.275	13.273
All other			83.090	95.256	101.072	\$3.870	75.755	00.100	50.903
Railway operating revenues			2.384.502	2.148.002	2.429.079	2.336.082	1.948.050	1.925.256	1,909.015
Way and structure			410.094	582.433	435.763	1	118.155	.90.030	
Equipment			168.156	538.450	623.963	2.397.649	521.192 040 051	322.370	2,420,008
Transportation		*****	1.083.105	1.102.527	240.518		258.706	199.824	
General & tomus.			2 407 024	1 101 100	1 140 191	2 107 449	2 047 116	1 895 015	2 426 008
Raiway operating expenses			100.24%	115.04%	101.28%	102.81%	105.09%	28.46%	127.12%
Net revenue from railway oper.			(22.524)	(353.288)	(31.202)	(60.767)	(99,066)	29.541	(517,553)
Other Income:					4 104		10 104		
Rev. from prop. used in other than carrie	er oper	* * * * * * * * * * * * * * * * *	1.943	12 014	15 947	50 557	52.8.59	50.541	164.567
Miscellaneous rent income			6.586	8,800	13.176	11.305	7.061	8.740	
Other non-operating income			307.532	482.356	192.438	301.152	310.303	97.902	
Dividend income			3,000						
Release of premiums on funded debt		••••••		1			11 222	25 000	78.176
Dividends	************		(7 569)	(2.409)	24.898	18.363	84.052	13.013	(10.100)
Equity in councilie. early, rosses			161 061	£14 578	170 107	184 177	406 471	209 474	122 187
Total non-operating income			331.035			101.100	107 105	210 115	1105 100)
Gross income Misceilaneous Income Deductions:		• • • • • • • • • • • • • • • • • •	328.529	181.237	.47,705	143.233	17 103	17 807	(373.2007
Exp. of prop. used in other than carmer of	oper	* * * * * * * * * * * * * * * * *	12.380	18.043	13.344	13.3%		(256)	20 848
Separately operated prop 1035		* * * * * * * * * * * * * * * * * *	39.821	64.479	78.219	18,286	37.874	13.170	
Cacollecubie accounts			525	3,600		1.075	3.400	1.169)	
Balance for fixed charges			265.297	95.115	154,144	287.598	343.831	212.140	(410.114)
Interest on funded debt			77.307	88.256	108.131	112.321	58.608	57.001	59.378
Interest on unrunded debt		* * * * * * * * * * * * * * *	5.823	1.549	2.194	5.187	12.383	101	261
Amorazacion ol deot discount		******	3.311	1,340		122.105			
Total fixed charges			50.941	91,345	111.0/2	144.195			
Income before income tax		*****	178.356	3.770	42.472	165.503	270,891	140.473	(4, 54,
Income cares			20 143	1 760	18 204	58.827	56.757	31.921	CT: 30.107
Prov. for deterred sic. all						27 041	175 174	147 404	
Change in accounting for income taxes.	· · · · · · · · · · · · · · · · · · ·	* * * * * * * * * * * * * * * * * * * *	109.493		.9,130		74,000		
Net Income (loss)			109.493	1,499	19,138	97,943	299,424	142,408	(254,258)
Balance at beginning of year			886.596	808.826	814.938				
Credits to retained earnings			120.319	00	18 750	* * * * * *			
Deoits					100.000				
Retained earnings, end of year		* * * * * * * * * * * * * * * * *	305.470	189.22	1 28	2.35	T4.71	1.23	
Times charges earn, before inc. fat	* * * * * * * * * * * * * * * *	******	2.25	1.02	1.26	1.30	T4.09	3.18	
Margin of safety			7.48%	0.16%	1.75%	7.08%	13.20	7.50%	
IExcludes accounting change.		Car Types:				U Other			321
TRestated to reflect Southern Pa	cific Transpor-	Box		25.212	49.078 A	uto racks		12.571	9,114
tation Co. combined with St. Louis	Southwestern	Gondoia		2.116	19.500	_			
Railway Co.		Hooper		6.028	47.165	Total	********	\$7.063	140,014
Rents for Interchanged Freight	t Cars, years	Painterator		11.616	11 100	Other Equipm	enc		
ended Dec. 31, 1992 (in \$000):		Service and the service servic		76.153		thet trailers		3.624	12.100
Gro	Gross	Fiat	* * * * * * * * *	10.333	11 204	Grand Total		20.68*	266 114
Amt R	Amt. Pay	1 ANX	* * * * * * * * *	*	31,300	Grand Local.		10,001	
RECORD OF EARNINGS, YEARS	ENDED DEC. 3	1:			2.1	_			

		Way &	Trans	Total	Orarating	Net	Other	Balance	Fixed	Income	Net	Charges
Ver	Revenues	Equip.	Expenses	Expenses	Ratio	Income	Income	Charges	Charges	Taxes	Income	Earned
I CAL	Revenues	- (Thousands	s of Dollars)		(%)			Thousan is	of Doulars) -			
Southern P	acuic Transport	ation Co.										1.15
1943	\$97.367	167.062	166.806	369.210	61.81	17.24	9.074	85.511	21,111		14 - 20	2.10
1944	528.224	190.607	190,305	420.932	67.00	52.449	9.011	01.193	24.000		30.7.07	
1945	. 590.262	216.162	193.003	451.145	76.43	51,010	8,769	59.108	10.001	2.7	33.10/	2.00
1940	484.536	173.201	214.118	431.409	25.98	41.525	7.799	48.394	43.114	0.0		2.00
1947	529.021	153.793	209.745	402.242	76.03	44.056	9.142	53.090	19.033	3.4.	33,434	2.01
1948	587.402	175.169	241.081	457.230	17.53	49.906	9,960	59.092	20.333	3.4.	30.,00	2.12
1519	537.519	173.028	212.210	424.833	79.04	40.511	11,278	51.092	20.012	A.1.	50.480	1.40
1950	. 598.263	181.041	217.365	437.315	73.10	60.513	11.771	71.048	20,309	2.4	30.034	1.00
1951	. 647.671	207.165	250.441	499.336	77.10	\$6.361	10.082	00.431	20.412	3.4	+0.017	1.01
1952	700.159	216.517	759.032	519,950	74.24	71.584	11.589	82.507	20.565	3.4	01.942	•.U1
1953	692.085	223.371	257.453	525.942	76.00	\$9.320	19.049	78.176	20.254	N.A.	51.74-	3.50
1954	626.214	209.116	246.132	500.812	79.90	48.173	17.808	55.107	20.812	N.A.	+4.333	3.13
1955	666.920	225.590	257.307	529,108	79.33	57.286	18.810	72.753	21.108	N.A.	51.043	3.43
1956	678.325	230,100	269.498	548,495	80.86	48.772	21.043	68.762	22.301	N.A.	40.40.	1.00
1957	663.493	223.917	261.113	532,131	80.20	53.835	22.308	71.751	2500	N.A.	+0.043	1.50
1958	648.814	221.480	251.340	519,485	80.07	50.924	33.894	73.099	26.048	N.A.	47.051	2.00
:959	690,116	233.254	250.597	539.940	78.22	53.161	24.626	75.056	,5.852	N.A.	49.20.5	1.90
1950	666.032	225.942	255.572	527.213	79.11	49.375	27,773	73.000	26.161	N.A.	47.445	2.51
1961	674.813	218,368	255,778	522.144	77.38	\$3.103	29.272	80.795	20.244	N.A.	34.334	3.00
1962	701.379	236.445	266.100	\$48,759	78.18	50.185	29.248	87.080	20.297	N.A.	00.755	2.21
1263	704.488	238.313	272.108	553.260	78.53	71.284	30.235	93 275	26.222	N.A.	07.053	3.20
1964	728.578	243.793	289.277	582.287	79.92	60.105	33.677	91.42	27.443	N.A.	03.898	3.23
1965	186.220	252.391	307.775	611.711	77.30	68.647	35.074	98,450	28.773	N.A.	09.017	3.44
1966	822.155	267.322	320.417	641.468	78.03	62.000	47.394	104.323	10.131	N.A.	74.392	3.41
1967	799 309	247.458	322,169	026.185	78.14	52.521	39.927	80.124	31.007	N.A.	54.117	÷::
1968	860.168	266.096	343.083	672.008	78.13	65.161	40.225	100.+40	31.580	N.A.	14.500	3-1
1969	923.922	279.042	369.044	719.317	77.85	69.272	47.592	110.936	33.370	N.A.	11.559	3
1970	935.702	287.021	375.055	731,402	78.17	61.596	52.104	103.028	30.018	NA.	00,410	1.51
1971	1.028.705	344.067	383.054	804.842	78.17	74.761	04.094	131.724	38.781	N.A.	17,544	3.40
1972	1 119 929	159 :05	423.465	861.599	76.93	93.119	50.310	135.283	42.203	N.A.	93.079	3.41
1973	1 197 214	162.282	471.081	921.627	77.26	50.482	53.597	20.937	42.502	N.A.	54.435	2
197.	1 121 191	404.189	526.383	1.022 588	17.27	60.155	72.708	132.303	44.031	N.A.	88.232	1.91
1975	1 257 108	309 925	513.020	988.937	78.00	26.152	73.726	29.5"8	47.251	NA	52.027	
1976	1417 554	171 493	566.120	1.114.848	78.65	49.947	80.415	130.374	49.111	N.A.	5103	2.05
1977	1 500 444	186 765	607.577	1 207 . 60	77.40	\$3.725	30.177	133.030	54.050	N.A.	79.580	2.4.
11978	1051 884	723 425	734.857	1.010.275	97.75	37.509	30.040	110.554	59.013	1.572	49.369	1.50
1970	1 910 524	:05 ::**	915.165	1.882.111	97.49	48.191	97.502	137.100	08.470	12.717	56.513	1.53
1980	2 050 049	101 021	1.020.037	2.003.045	97.71	47.004	103.411	142.428	87.471	CT17.855	72.512	1.83
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1984 PAGE 5

LINE ITEM	мкт 21	22	B 6 M 23	24	25
FINANCIAL SUMMARY (\$000) 1. Total Operating Revenues 2. Total Operating Expenses 3. Depreciation 4. Total Taxes 5. Net Railway Operating Income 6. Net Income 7. Capital Expenditures 8. Rate of Return on Net Investmt. 9. Total Assets 10. Total Liabilities 11. Avg. Shareholders' Equity 12. Return on Shareholders' Equity 13. Miles of Road Operated 14. Average Employment	\$ 275,565 259,401 18,032 -800 18,403 7,856 49,450 5.83% 412,965 425,451 -16,414 DEF 2,099 2,598	 \$ 315,524 292,301 19,657 10,615 12,409 18,002 29,208 2.128 598,296 321,490 272,295 6.618 4,628 3,683 	\$ 125,053 118,947 1,623 0 6,403 7,856 8,917 9.268 118,359 72,232 42,198 18.628 1,410 2,533	\$ 123,202 128,276 1,588 0 -4,959 -6,537 13,624 DEF 94,400 96,160 -24,062 DEF 1,581 1,416	\$ 50,316 54,490 2,683 -299 -3,848 -11,598 2,690 DEF 167,586 159,158 14,227 DEF 408 1,070

LINE ITEM	нкт 21	500 22 1.	B 6 H 23	24	25
Financial Results & Resources Income Statement (\$000) Operating Revenue					
15. Freight	261,245	\$ 308,215	\$ 119,103	\$ 117,428	
16. Passenger	0	. 0	0	0	115
17. Passenger-related	0	0	0		472
18. Switching	9,629	4,214	636		
19. Water transfers	0	0	0	1 752	609
20. Demurrage	2,153	2, 342	2,251	906	384
21. Incidental	1,675	471	3,029	1	0
22. Joint Facility - CR	546	282	1		0
23. Joint Facility - DR	0	0	1 176 653	119.200	49.820
24. Railway Operating Revenues	275,248	315,524	125,053	1	196
25. Transfers from Government)))	0	1 125 051	123, 202	49,705
26. Freight Service Revenue	275,565	315,524	125,055	121,202	50,316
27. Total Railway Operating Revenues	275,565	315,52	125,055		
20 Ballion Operating Puperces	259,401	292,301	118,947	128,276	54,490
29. Net Revenue from Operations	16,164	23,223	6,106	-5,070	-4,174
Other Income	• 2,222	\$ 730	s 172	s 5	\$ 76
30. Income from Affiliated Co.		1	145	21	
31. Dividends	2,222	730	2	21	76
32. Equity in Earnings (losses)	8,62	14,79	3,96	1,21	5,994
33. Total Other Income	2 61	34	5 1,45	15	487
34. Miscellaneous Deductions 35. Income Before Fixed Charges	22,151	37,67	8,61	-4,01	1,33
Final Charges				s 1.72	s 8,63
36. Interest on Funded Debt :	\$ 14,783	1,97	10	1 1 72	8.61
37. Fixed Interest Not in Default	14,78	1,91	16	1,12	
38. Interest in Default	(
39. Interest on Unfunded Debt	210	9	0	66	
40. Amort. of Disc. on Funded Debt	90	5	0	13	
41. Total Fixed Charges	15,09	8,06	1 76	2,51	13,23
42. Income After Fixed Charges	7,05	6 29,61	1 7,85	6 -6,53	7 -11,89
43. Contingent Interest		99	6	0	0
44. Unusual or Infrequent Items-CR		0	0	0	0

1984 PAGE 23

LINE ITEM	МКТ 21	500 22	B 6 M 23	D 6 H 24	P & LE 25
Liabilities Current Liabilities 73. Accounts Payable 74. Taxes Accrued 75. Other Current Liabilities 76. Equip. Obligations & Other LTD Due Within One Year 77. Total Current Liabilities	\$ 67,293 3,010 170 11,262 81,735	\$ 57,957 5,303 2,855 9,418 75,533	\$ 33,571 509 3,837 1,136 39,053	\$ 56,340 825 637 1,231 59,033	\$ 82,971 754 3,001 4,425 91,151
Noncurrent Liabilities 78. Funded Debt Unmatured 79. Equipment Obligations 80. Capital Lease Obligations 81. Debt in Default 82. Accounts Payable Affil. Co. 83. Accumulated Deferred Income Tax Credits 84. Other Long-term Liabilities 85. Total Noncurrent Liabilities 86. Total Liabilities	\$ 131,186 24,111 50,137 (20,775 (117,50 343,718 425,45	\$ 33,076 62,488 0 0 139,796 10,597 5 245,957 321,490	\$ 0 872 6,126 0 2,437 0 23,744 33,175 72,232	\$ 3,012 14 7,784 0 1,660 24,65 37,12 96,160	\$ 0 51,179 4,802 0 4,510 2,887 4,629 68,007 159,158
Shareholders' Equity 87. Capital Stock 88. Common Stock 89. Preferred Stock 90. Discount on Capital Stock 91. Additional Capital 92. Retained Earnings: 93. Appropriated 94. Unappropriated 95. Net Unreal. Loss Noncurrent Harketable Equity Secur. 96. Treasury Stock 97. Net Stockholders' Equity	\$ 9,761 9,761 1,65 -24,10 -24,10 -12,48	0 \$ 93,30: 0 93,30: 0 93,30: 0 183,50 0 183,50 0 183,50 0 276,80	2 \$ 11,92 2 2,42 0 9,49 0 23,43 4 10,76 0 10,76 0 46,12	s 2,61 5 50 9 2,11 5 2,29 8 -6,66 0 -6,66 0 -7 -1,76	3 \$ 34,554 0 34,554 3 0 0 -28,18 9 2,05 0 2,05 0 2,05 0 0 0 8,42
93. Total Liabilities and Shareholders' Equity 99. Net Working Capital	412,96	5 598,29 6 75,11	96 118,35 18 -27	9 94,40 6 -20,69	10 167,58 15 -65,28

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PAGE 41

LINE ITEM		21		22		23		24		25
Train Operations	5	68,067	5	76,323	5	35,227	\$	46,611	\$	11,313
159. Itansp Itali operations		35,181		31,795		14,812		8,571		12,063
160. Transp Tard Operations		300		952		24		569		219
161. Transp Train furd common		4,829		2,474		1,443		379		-12
162. Special Support Operations		8,706		15,968		4,964		1,740		2,525
164 Total Transportation		117,083		127,512		56,470		57,870		26,108
ist. Constal and Administrative		23,574	1	30,503	1	7,344		11,122		12,113
166. Total Railway Operating Exps.		259,401		292,301		118,947		128,276	_	54,490
Freight Service Expenses (\$000)										
Ways and Structures		16.236	15	24,837	15	8,332	5	6,857	15	4,180
167. Labor	1	4.472	1	9,829		2,636	1	1,669		1,569
160. Fringe Benerics		8.684	1	8,870		3,726		1,876		2,207
169. Materials and Suppries		786		1,665		416		901		131
170. Casualties and Insurance	1	1.439	1	258		129	1	610	1	59
171. Lease Rentals and Other Rents		11.305		11,615	5	1,41'		850		1,248
172. Depreciation	1	10.058		4,554		1,9	1	8,515		-1,193
173. All Other 174. Total Way Structures		52,980		61,628	,	18,562		21,276		8,201
Equipment - Lecomotives		4 856		4.405	5 5	3,544	5	3,203		1,333
175. Labor		1,817	1	1,659	9	1,172		1,127	1	659
176. Fringe Benetits	1	2 926		3, 36	3	2,367	1	1,253	2	745
177. Materials and Supplies	1	508		278		646		310		79
178. Casualties and Insurance		2 111		240	10	-1,839		3,76	•	-1,574
179. Lease Rentals and Other Rents	'	2.61		2.42	6	193	2	30	9	72
180. Depreciation		2 2 2 2 1	1	2.99	1	59	1	68	6	486
181. All Other 182. Total Locomotives	1	17,292	2	15,36	4	6,67	•	10,64	2	1,800
Fauloment - Freight cars	-			6.94	9 4	2.61		2,33	4 5	4,219
181. Labor	1,	3,330		2 14	5	79	8	78	8	1,710
184. Fringe Benefits		1,59		1,34	1	2.07		32	9	690
185. Material and Supplies	1	1,32		1,75		1.54	9	37	9	5
186. Casualties and Insurance		21 61		11,20	5	19,97	9	20,28	0	-3,35
187. Lease Rentals and Other Rents	5	27,63	,	5 10			0	36	8	1,23
188. Depreciation		4,05		-1.09		-1,25	8	1,44	1	29
189. All Other		2,47	1	51 61		25,75	5	25,92	1	4,84
190. Total Freight Cars	1	40,83	'	51,61	1_		1_		_1_	
LINE ITEM	1.1	L & H	нкт	мр	H 6 9	P 6 LE	SLSW			
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	26	27	28	29	30	31	32			
FINANCIAL SUMMARY 1. Total Operating Revenues 2. Total Operating Expenses 3. Depreciation 4. Total Taxes 5. Net Railway Operating Income 6. Net Income 7. Capital Expenditures 8. Rate of Return on Net Investmt. 9. Total Assets 10. Total Liabilities 11. Avg. Shareholders' Equity 12. Return on Shareholders' Equity 13. Miles of Road Operated 14. Average Employment	 392,121 426,291 9,736 0 -29,764 -35,156 -367 DEF 285,777 293,180 6,457 DEF 326 7,013 	\$ 1,267,434 1,144,090 49,213 30,896 06,337 104,413 190,014 4.89% 1,888,040 1,115,226 722,986 14.44% 6,538 13,579	\$ 268,250 248,747 10,755 -6,562 26,692 7,674 118,675 11.82 347,472 370,125 -25,785 DEP 2,174 2,945	\$ 1,887,660 1,660,169 72,634 49,205 178,502 148,323 298,583 6.124 2,956,992 2,000,371 902,959 16.434 11,272 20,830	\$ 1,785,907 1,341,925 69,273 210,588 239,257 291,063 109,484 9.65% 3,254,318 1,439,776 1,696,711 17.15% 7,803 21,208	 8 82,641 72,647 1,168 6,859 3,168 21,795 13,809 2.124 157,897 113,276 33,723 64.634 270 1,933 	\$ 308,875 335,578 25,628 29,023 24,274 61,001 10,502 3.64% 838,881 437,068 371,145 16.44% 2,384 5,228			

PAGE 5



1986 PAGE 3

LINE ITEM	GIW	10G	В 6 М	D 6 H
	8	9	10	11
FINANCIAL SUMMARY (\$000) 1. Total Operating Revenues 2. Total Operating Expenses 3. Depreciation 4. Total Taxes 5. Net Railway Operating Income!/ 6. Net Income 7. Capital Expenditures 8. ICC Rate of Return?/ 9. Total Assets 10. Total Liabilities 11. Avg. Shareholders' Equity 12. Return on Shareholders' Equity 13. Miles of Road Operated 14. Average Employment	\$ 323,030 353,521 18,360 -3,197 -28,084 -16,446 17,485 DEF 495,162 276,519 226,866 DEF 1,311 4,059	\$ 679,488 1,025,626 156,534 -158,716 -189,774 -171,674 58,465 4.010 1,546,344 1,054,549 653,021 DEF 3,788 6,778	\$ 86,334 91,556 1,992 0 -4,926 2,986 6,432 DEF 125,790 79,650 48,909 6.11% 1,350 2,003	80,381 92,219 1,669 0 -11,786 -13,527 11,582 DEF 118,753 135,354 -10,325 DEF 1,501 931

8	9	10	
308,519			
308,519			
308,519			
308,519			
	\$ 608,087	\$ 81,434	\$ 78,685
0	22,759	0	0
2	0	0	0
6,773	18,040	309	264
0	0	0	0
4,402	4,318	1,274	623
2,630	4,695	3,315	120
0	119		0
0	0	0	10 697
322, 326	658,018	86,334	19,092
704	21,470		00 391
323,028	635,259	86,334	60,381
323,030	679,488	86,334	80,381
151,521	1,028,626	91,556	92,219
~30,491	-349,138	-5,222	-11,838
16	\$ 595	\$ 80	\$ 59
0	(25	34
16	595	-16	25
22,973	62,391	8,59	2,356
5,924	865	2,57	136
-13,442	-287,610	80	-9,620
			2 625
5,711	\$ 41,240	54	2,020
5,711	41,240	54	2,020
0	1		
466	93	7 14	1,19
24	60	3	2.00
6,201	42,78	69	3,90
- 19,643	~330,39	0 11	-13,52
0		0	
0		2,87	5
	0 2 6,773 0 4,402 2,630 0 322,326 704 323,028 323,030 353,521 -30,491 16 0 16 22,973 5,924 -13,442 5,711 5,711 0 466 24 6,201 -19,643 0 0	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$

	GIW	ICG	B 6 M	D6H
LINE TIEM	8	9	10	11
Liabilities				
Current Liabilities				. 60 137
73. Accounts Payable	\$ 94,277	291,485	\$ 37,321	\$ 00,137
74. Taxes Accrued	4,407	12,065	1,342	831
75. Other Current Liabilities	37,321	14,342	2,340	1.538
76. Equipment Obligations & Other	8,650	19,092	42 142	65.428
77. Total Current Liabilities	144,65	5 336,984	42,142	
Noncurrent Liabilities				13.226
78. Funded Debt Unmatured	\$ 34	3 244,49		0
79. Equipment Obligations	32,37	3 62,93	1.93	5,873
80. Capital Lease Obligations	5,85	4 3,47		0 0
81. Debt in Default		0	5,20	3 1,660
82. Accounts Payable Affiliated Co.	54,05	352,27	8	0 0
83. Accumulated Deferred Income	10.20	54.38	28,37	49,167
84. Other Long-term Liabilities	39,24	717.56	37,50	69,926
65. Total Noncurrent Liabilities	131,80	1.054.54	79,65	135,354
86. Total Liabilities	276,51			
Shareholders' Equity		152.53	14,12	9 \$ 3,198
87. Capital Stock	\$ 20,00		1 2,42	500
88. Common Stock	20,00	152.5	11,70	2,698
89. Preferred Stock		0	0	0 0
90. Discount on Capital Stock	200.1	268,5	25,85	4,541
91. Additional Capital	-1.5	43 70,6	99 6,15	-24,340
92. Retained Earnings		0 42,5	28	0
93. Appropriated	-1.5	43 28,1	6,1	-24,340
94. Unappropriated		0	0	0 0
95. Net Unrealized Loss Noncurrent Marketable Equity Securities		0	0	0
96. Treasury Stock	218,6	43 491,7	95 46,1	40 -16,601
			125.7	90 118,75
98. Total Liabilities and	495,1	62 1,546,5	40 5	38 -31,81
99. Net Working Capital	2,6	-180,7		

1986 PAGE 39

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8 83,615 66,930 978 2,996	9 \$ 169,594 76,352	10 \$ 24,686 8,514	\$ 29,087
83,616 66,930 978 2,996	\$ 169,594 76,352	\$ 24,686	\$ 29,087
66,930 978 2,996	76,352	8.514	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
978			0,4/2
2,996	2,636	57	405
	16,674	761	137
24.867	27,749	3,729	1,095
179, 387	293,005	37,747	37,196
48,834	223,895	9,532	7,256
353,521	1,028,626	91,556	92,219
14,962	\$ 18,007	\$ 4,861	\$ 3,624
4,858	4,537	2,111	1 465
6,851	9,997	1,015	601
2,292	15,250	350	625
987	4,38	86	1,167
5,779	9,50	1,77	6 984
4,415	4,05	5 1,17	17 233
41,144	65,73	12,15	
	15,32	3 3,01	1 3 1,745
\$ 2,00	5,06	1,98	6 1,028
2,00	21,01	2 1,67	4 934
5,07	6,55	9 43	7 275
5,00	16.61	-34	8 2,51
1,13	17.90	5 19	5 25
1,51	67	9 55	1
20,74	9 83,16	7,50	9 6,75
	16.0	1,10	1,93
\$ 8,72	9 \$ 1", 5.1"	55	90
2,87	5 6.5	1,0	1,15
5,98	4.1	5	88 22
1,61	152.1	18,1	16,68
26,80	128.0	69	0 19
8,6	4.7	-2	92 1,30
55,2	64 316,9	03 20,6	30 22,39
	24,867 179,387 48,834 353,521 4,858 6,851 2,293 987 6,775 4,415 41,147 41,1	24,867 27,749 179,387 293,005 48,834 223,895 353,521 1,028,626 4 14,962 14,962 18,007 4,858 4,537 6,851 9,997 2,292 15,250 987 4,389 6,779 9,501 4,415 4,059 4,1,144 65,733 4 6,310 4 6,310 5,005 6,555 1,132 16,61 1,578 17,90 844 67 20,749 83,16 4 6,55 1,612 4,11 2,875 5,19 5,980 6,57 1,612 4,11 26,869 152,11 8,698 128,00 501 4,7 55,264 316,9	24,867 $27,749$ $3,729$ $179,887$ $293,005$ $37,747$ $48,834$ $223,895$ $9,532$ $353,521$ $1,028,626$ $91,556$ $4,858$ $4,537$ $2,111$ $5,851$ $9,997$ $1,015$ $2,292$ $15,250$ 356 987 $4,385$ 867 $6,779$ $9,501$ $1,773$ $4,415$ $4,055$ $1,176$ $41,144$ $65,732$ $12,152$ 409 $5,067$ $1,986$ $3,871$ $21,012$ $1,677$ $5,005$ $6,559$ 43 $1,132$ $16,618$ -344 $1,578$ $17,905$ 19 844 679 555 $20,749$ $83,163$ $7,50$ $1,612$ $4,189$ 57 $25,869$ $152,171$ $18,11$ $8,698$ $128,069$ 501 $4,724$ -22 $55,264$ $316,903$ $20,6$

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1983 PAGE 3

LINE ITEM	сим 11	CMSP & P 12	CRC 13	D 6 H(2) 14	DRGW 15	UT & I 16
FINANCIAL SUMMARY 1. Total Operating Revenues 2. Total Operating Expenses 3. Depreciation 4. Total Taxes 5. Net Railway Operating Income 6. Net Income 7. Capital Expenditures 8. Rate of Return on Net Investmt. 9. Total Assets 10. Total Liabilities 11. Avg. Shareholders' Equity 12. Return on Shareholders' Equity 13. Miles of Road Operated	\$ 859,902 801,671 37,192 5,175 56,188 33,819 115,647 4.78% 1,258,919 823,138 380,984 8.88% 7,842	\$ 369,311 360,603 35,801 0 8,633 8,859 58,996 1.35% 1,181,056 861,109 313,011 2.83% 3,090	\$ 3,025,310 2,740,633 241,610 14,892 270,297 313,008 449,333 5.80% 5,669,681 2,701,081 2,811,527 11,13% 16,233	\$ 108, 354 114, 295 4, 115 0 -5, 814 -16, 317 2, 410 DEF 113, 934 160, 299 -39, 528 DEF 1, 585	\$ 306,401 288,315 22,527 3,851 14,112 19,405 72,673 2.198 620,256 285,682 330,268 5.888 2,412 1,035	\$ 68,955 74,073 5,462 0 -5,103 -8,493 633 DEF 91,999 70,357 25,888 DEF 527 851
14. Average Employment	10,929	•,/31	33,020			

FRANK J. BERARDINO

Business and Professional Experience

1991-Present President, GRA Incorporated

Frank Berardino is President of GRA Incorporated. He specializes in economic and financial analysis of regulated industries including railroads, aviation and other modes of transportation. Many of Mr. Berardino's assignments relate to financial transactions.

In the surface modes, most of Mr. Berardino's activities have pertained to pricing, cost allocation, valuation and antitrust issues. He has testified as an expert in both federal court and before the Interstate Commerce Commission on market foreclosure, pricing in markets dominated by a particular carrier, and valuation and cost allocation issues.

Mr. Berardino has testified as an expert witness in several legal cases and regulatory proceedings, including cases involving the maximum allowable rates for traffic dominated by a single railroad and the damages incurred by a firm foreclosed from transportation markets.

1982-1991	Principal, Gellman Research Associates, Inc.
1979-1982	Vice President, Gellman Research Associates, Inc.
1975-1979	Economist, Gellman Research Associates, Inc.
1975-1979	Aajunct Assistant Professor of Economics, Rider College, Trenton, NJ
1972-1975	Teaching Fellow in Economics, University of Pittsburgh, Pittsburgh, PA

Education

Kenyon College, B.A., Economics, 1970

Defense Language Institute, West Coast, Certificate in French, 1971

University of Pittsburgh, M.A., Economics, 1974

GRA, Incorporated

Selected Publications and Reports

(with W. B. Allen), "Model to Project Railroad and Slurry Pipeline Costs," on behalf of Arkansas Power and Light, ETSI Pipeline Project and Houston Light and Power.

(with E. Bomberger) "An Experiment to Estimate the Economic Value of New Truck Technology," prepared for IBM.

"Sharing Revenues in a Truck/Rail Joint Venture," prepared for a private client. (with W. B. Allen), "The Economic Impact of Intrastate Trucking Deregulation," produced for a private client.

"Going Concern Value of a Branch-Line Railroad," report to a private client.

"Damages Due to the Elimination of a Competitor in the Transportation Industry," report to a private client.

(with W.B. Allen), "The Application of Ramsey Pricing in the Railroad Industry," <u>Proceedings--25th Annual Meeting</u> Transportation Research Forum, 1984, Vol, 25 No. 1.

(with W. B. Allen), "The Elasticity of Demand for Freight Transportation: The Case of Recyclable Commodities," <u>Proceedings of the 19th Annual Meeting, Transportation</u> <u>Research Forum</u>, 1978.

"Airline and Travel Industry Call Center/Distribution Trends," presented at United Airlines Chicago Headquarters.

"Public Policy Questions Regarding Exemption for Commercial Aviation from the Excise Tax on Transportation Fuel," prepared for the Air Transport Association.

"A Study of the High Density Rule," Report to Congress, prepared for Federal Aviation Administration.

"A Study of International Airline Code Sharing," prepared for U.S. Department of Transportation.

"Restructuring of Routes and Service Concepts," prepared for the Board of Directors of TransWorld Airlines.

"Evaluation of the Atlanta Hub," prepared for the Board of Directors of TransWorld Airlines.

GRA, Incorporated

"Evaluation of Unisys' Strategic Plan for Aviation."

"Changes in North Atlantic Capacity," prepared for Merrill Lynch.

"Evaluation of an Aviation Strategic Plan," prepared for AT&T.

"Evaluation of Alternative Approach Procedures to Reduce Noise," prepared for NASA.

"Guam Airport Master Plan: Forecasts of Future Activity," prepared for Guam Airport Authority.

"Airport Financial Planning Model for Indianapolis Airport," prepared for Johnson Controls.

"Support to the FAA for Economic Analysis Regarding New International Noise and Emissions Standards," prepared for the Federal Aviation Administration.

"Revised Establishment Criteria for Airport Surface Detection Radar," prepared for the Federal Aviation Administration.

"Cost-Benefit Analysis of Precision Runway Monitors," prepared for the Federal Aviation Administration.

"Investigation of Far East Joint Venture Opportunities," prepared for Sky Chefs.

Negotiations with Airbus Industrie on Purchase of New Aircraft on Behalf of Air Lanka.

"Evaluation of the Middle Market for Air Freight," prepared for Federal Express Corporation.

"Appropriate Strategies for Branson Airlines," prepared for Branson Airlines.

"Evaluation of Reorganization Plan of Hawaiian Airlines," prepared for the counsel for Hawaiian Airlines.

"Strategic Planning, Fleet Planning and Financial Analysis," prepared for Fhilippine Air Lines.

"Analysis of Air Transat," prepared for PacifiCorp Financial Services.

"Strategic Review of Air Lanka," prepared for the International Finance Corporation.

"Economic Viability of Airphone Franchises," prepared for a private client.

"Aspen Safety and Airport Utilization Study," prepared for Pitken County, Colorado.

"An Economic and Financial Analysis of Airlines' Ability to Withstand Strikes by Labor," prepared for the Air Transport Association of American.

"Analysis of Northwest Airlines Atlantic Routes," prepared for the Minneapolis/St. Paul Metropolitan Airports Commission.

"Analysis of an Airline Acquisition," prepared for an investment bank.

"Acquisition of the Pan Am Shuttle," prepared for an investment group.

"Current and Alternative Methods of Financing Large Commercial Airports," prepared for the Federal Aviation Administration.

"Acquisition of a Trunk Carrier, Financial and Operations Analysis," for an investment group.

"Acquisition of a National Carrier, Financial and Operations Analysis," for an investment bank

"Support of the Secretary's Competitive Task Force," for the Secretary of Transportation and the Federal Aviation Administration.

"Establishment Criteria for Airport Surface Detection Equipment," for the Federal Aviation Administration.

"Asrport Ownership, Cost Allocation and the Pricing of Airport Services," for the Federal Aviation Administration.

(with others), "Aircraft Purchasing Decisions and the Effect of Stage III Regulations," for the Federal Aviation Administration.

"Pricing Off-Airport Access," for Miami International Airport.

"The Economics of an International Air Freight Hub," prepared for a private client.

"The Economics of Airline Aircraft Decisionmaking," for the National Aeronautics and Space Administration.

(with H. Hertzfeld), "Prospects for Space Commercialization," for the National Chamber Foundation.

(with R. Golaszewski), "The Economics of Civil Tiltrotor: Three Scenarios," for the National Aeronautics and Space Administration.

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(with R. Golaszewski), "The Allocation of Airport Costs to Users," on behalf of the National Business Aircraft Association.

"The Effects of Facilities and Equipment on Aviation Safety," for the Federal Aviation Administration.

(with R. Golaszewski and J. Bentley), "Analysis of Airbus Aircraft Programs," for the U.S. Department of Commerce.

"Market and Economic Evaluation of High-Speed Commercial Vehicle," for the National Aeronautics and Space Administration.

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"Demand for Aviation Safety," for the Federal Aviation Administration.

(with R. Golaszewski and J. Bentley), "The Privatization of Flight Service Stations," for the Federal Aviation Administration.

"Alternative Strategies for Dealing with an Airline Tenant," prepared for a major northeastern airport operator.

"Alternative Measures of Airline Service Quality," prepared for a major airline.

"Evaluation of a Combination Freight-Passenger Airline Operation," report to a private client.

"Design of Frequent Flyer Program," prepared for a major U.S. carrier.

(with J. Bentley), "The Economics of R&D Decisionmaking in Aeronautics," report to the National Aeronautics and Space Administration.

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(with J. Bentley and F. Tiffany), "Economic Analysis of Aeronautical Research and Technology," Chapter V in Volume II of: <u>Aeronautical Research and Technology Policy</u>, Executive Office of the President, Office of Science and Technology Policy.

"Alternative Techniques to Assure Airport Access for New Carriers," for the Federal Aviation Administration, September.

"Impacts of Proposed Standby Gasoline Conservation Plan No. 1 on General Aviation Fuel Consumption," for the Federal Aviation Administration.

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"The Magnitude and Incidence of 'Non-Aviation' Taxes on General Aviation," report to Federal Aviation Administration, Office of General Aviation.

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"The Benefits and Costs of Creating Jobs," a series of papers for Control Data Corporation.

(with A. Gellman and F. Tiffany), "On Measuring the Costs of Regulation," in Government

<u>Regulation of Businese: Its Growth, Impact, and Future</u>, published by the Chamber of Commerce of the United States.

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(with R. Golaszewski and J. Bentley), "An Economic Rationale for Continued Unrestricted Access to Foreign FAA-Certificated Repair Station Services," for the International Air Transport Association, January 1988.

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(with R. Golaszewski), "Appropriate Allocation of Logan Landing Field Costs," testimony for the National Business Aircraft Association, United States District Court of Massachusetts, February 1988.

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"Sensitivity of Recyclable Materials to changes in Transportation Rates," Preparation of testimony on behalf of Eastern, Western, and Southern Railroads in ICC Ex Parte 319, June 1976.

INTRODUCTION

My name is John J. Grocki. I am Executive Vice President of GRA, Incorporated (GRA), and I manage GRA's surface transportation practice. I have over 25 years of experience in railroad management and consulting. I have participated in numerous studies on behalf of companies concerned with the valuation of acquisition candidates, particularly in the railroad industry. A copy of my curriculum vitae is attached.

PURPOSE OF THIS VERIFIED STATEMENT

GRA has been retained by attorneys for Kansas City Southern Railway (KCS) to provide an independent assessment of several aspects of the proposed UP/SP merger. This verified statement is submitted to the Surface Transportation Board in Finance Docket No. 32760, and deals with two aspects of this transaction:

- 1. An assessment of the price paid by the UP for the SP relative to the SP's value, and the possible implications of that price for shippers on the UP/SP.
- 2. An assessment of alternative scenarios to the SP merging with the UP. Specifically, the potential value of the SP if it were broken up and sold to independent bidders.

PART 1: VALUE OF THE SP TO THE UP RELATIVE TO THE PRICE PAID BY THE UP

SUMMARY AND CONCLUSIONS

GRA analyzed the value of the SP to the UP based on a net present value of future cash flows approach. Based on our analysis, GRA concludes that for weighted average costs of capital between 14 and 12 percent, the value of the SP to the UP ranges between \$14.18 per share and \$21.27 per share. This range of values is substantially below the UP's offer of \$25 per share.

GRA also believes that the only way in which UP can recoup this value shortfall is through freight rate increases. Depending on the degree of monopoly power exercised by the UP, these freight rate increases could range from as little as .65 percent to as much as 21.8 percent (assuming that UP's monopoly power only extends to 10 percent of its traffic). In addition, should the merger synergies full to be realized, the magnitude of these freight rate increases will have to be greater in order to make up the value shortfall to the UP.

BACKGROUND

Under an agreement and plan of merger dated August 3, 1995 between Union Pacific Corporation and its subsidiaries (UP) and Southern Pacific Rail Corporation and its subsidiaries (SP), UP seeks to acquire SP. In compensation for this acquisition, SP shareholders are to receive a mix of cash at \$25 per share and UP stock at a ratio of 0.4065 shares of UP stock for each share of SP stock. The exact mix of cash and stock is to be determined in accordance with the merger agreement.¹ The UP offer at \$25 per share for the approximately 156 million outstanding shares of SP stock amounts to approximately \$3.9 billion.

In order to determine whether SP's value to the UP institutes a \$3.9 billion invesment, it is necessary to assess the value of the Southern Pacific from the UP's perspective. The determination of this value will facilitate an assessment of the reasonableness of the UP's offer.

APPROACH

There are a variety of ways to value a company. Techniques range from the simple summing of the book values of a company's outstanding securities to more complex discounted cash flow analyses. These methods are summarized below.

Book Value

One method of valuing a firm is to use the company's balance sheet. The value of the company can be calculated directly by summing the book value of the investor claims. The value of the Company can be calculated indirectly by summing net assets and subtracting current liabilities (other than debts owed to investors) and deferred taxes.

The problem with this procedure is that it equates the historical values of assets and liabilities, as recorded by accountants, with their market values. Using this methodology, other less quantifiable factors, such as the value "that is created by bringing employees,

¹Railroad merger application Finance Docket 32760, November 30, 1995, Vol. 7.

customers, suppliers, and managers together in a cohesive unit, " 2 *i.e.*, organizational capital, are also excluded from the value derived.

Capitalized Earnings

Another approach to valuation is the Capitalization of Earnings Approach. With this method, a value is estimated for the operating assets of the company by taking a historical average (3-5 years) or the current year's Earnings Before Interest and Taxes (EBIT), and multiplying these earnings by a capitalization rate. Most often, the capitalization rate is determined subjectively by adding a risk premium appropriate for the company to the current risk-free rate of return.³

Stock and Debt

The Stock and Debt Approach, or Market Approach, estimates the value of a firm by summing the market values of its outstanding securities. The theoretical foundation of this methodology is the Efficient Market Hypothesis (EMH). An efficient market is defined as one "in which the price of a security reflects all publicly available information."⁴ In the context of a company valuation, this implies that the prices of publicly traded securities accurately reflect the true underlying value of a company.

When using the Stock and Debt Approach, some appraisers utilize an average of past prices of securities in their valuation because they feel that an average is a better indication of a firm's underlying value than the current stock prices. Because security price

²Cornell, Bradford, <u>Corporate Valuation</u>, p. 23.

³Marren, Joseph H., <u>Mergers & Acquisitions: A Valuation Handbook</u>, p. 260.

⁴Cornell, Bradford, <u>Corporate Valuation</u>, p. 38.

fluctuations are a result of the arrival of new information, however, EMH implies that the firm's value should be based on current market prices, not averages of past prices.

Direct Comparison

The Direct Comparison Approach establishes the value of the company based on comparable companies whose value is known. The basis for this approach is that similar assets should sell at similar prices. Consequently, the value of the asset equals the sale price of the comparable asset. One main advantage to this approach is that it does not require cash flow f recasts.

Choosing the "comparable" companies can be difficult and is one of the main disadvantages to this method. In most cases, comparable companies are those that operate in the same or similar industries to the firm in question. It is important, however, to include in the valuation analysis only those companies that have operating characteristics similar to the target company. Financial ratio analysis can also be helpful in choosing the comparable companies to include. The rationale is that two comparable companies would be expected to have similar financial ratios. Financial ratios are generally divided into four categories:

- Liquidity ratios measure the quality and adequacy of current assets to meet current liabilities as they come due (e.g., current assets/current liabilities).
- Activity ratios measure the efficiency with which a firm is using its resources (gross profit/net sales).
- Leverage ratios measure a firm's ability to service its debt (EBIT/annual interest expense, total debt/market value of equity).
- *Profitability ratios* measure the management's effectiveness as indicated by the returns on sales, assets, and owner's equity (gross profits/net sales, EBIT/net sales).⁵

⁵Ibid, p.64.

Once the comparable companies have been chosen, a value indicator and an observable variable that is related to value must be determined. The observable value should be causally related to the value of the firm. The ratio of market value to earnings for comparable companies is frequently used. By applying the comparable companies' ratios to the earnings of the company being valued, estimates of the market value of the company can be made. Because estimated earnings are less variable than actual earnings, earnings estimates are often used for this approach. This type of statistical adjustment reduces the variation in the ratios by smoothing the financial data used to measure the observable variable related to value.

Comparable Transactions Approach

In addition to valuations based on direct comparisons with other companies, a valuation can be based on the transactions that have occurred in the recent past which involved companies in the target's industry or similar industries. The first step in this analysis is to calculate acquisition multiples for each transaction. The mean and median acquisition multiples are then calculated for all of the transactions being considered. These multiples are then applied to the target company's financial results (e.g., sales, operating cash flow) to estimate the value of the target company.⁶ When comparable transactions in the target company's industry have recently occurred, this technique is capable of providing a range of values for the target.

Breakup Analysis

Breakup Analysis is a valuation technique that can be applied to all multibusiness entities, regardless of whether they are public or private. The value of each of a company's

⁶Marren, op. cit., p. 187.

discrete assets (business units or individual assets) is analyzed and then summed to arrive at a value for the entire company.⁷

The acquirer's first step in this analysis is to define the business units to be valued, typically disregarding the target company's current business groupings. Once the units are defined, the potential acquirer utilizes valuation analyses to determine the highest value of the target's assets.

Discounted Cash Flow

Another method to assess the value of a firm is the Discounted Cash Flow (DCF) Approach. This approach is not only useful in determining the market value of the target company. but it is also "the most important valuation technique for estimating the value of a company to an individual acquirer."⁸

There are two DCF approaches: Net Present Value (NPV) Analysis and Internal Rate of Return (IRR) Analysis. For the NPV analysis the value of a firm is estimated by forecasting the future cash flows that a company will earn and then discounting those cash flows to present value using a discount rate that reflects the related risk.⁹ This technique's underlying premise is that regardless of the company's product, investors buy a company because they expect it to produce future cash payouts for them. The appropriate discount rate to use in NPV analysis is the weighted average cost of capital (WACC) of the target

⁷Ibid, p. 249.

⁸Ibid, p. 66.

⁹Ibid, p. 195.

company, assuming a given capital structure.¹⁰ The WACC is the same as the "after-tax market-determined opportunity cost of funds provided to the firm:"¹¹

WACC = $k_d(1-t_c)w_d + k_sws^{12}$

 $k_d = cost of debt capital$

 $t_c = corporate tax rate for appraisal target$

 w_d = fraction of debt in firm's long-run capital structure

 $k_s = cost of equity capital (common stock)$

 $w_s =$ fraction of equity capital in the firm's long-run capital structure

Several models can be used to calculate the cost of equity capital: the most common is the Capital Asset Pricing Model (CAPM).¹³

According to the CAPM, "the cost of equity capital is equal to the sum of the riskfree rate of return plus an amount equal to the market risk premium (the expected return on the market in excess of the risk-free rate) multiplied by the beta of the target company."¹⁴ The target's beta represents the level of systematic risk associated with the target's stock. This approach was utilized by CS First Boston in their analysis of SP's value to UP.

Once a WACC is determined, two components of the NPV must be estimated: cash flow over a forecast period, and a cash flow for the business after the forecast period. Both

¹³ If there is uncertainty regarding the cost of equity capital, a range of discount rates is usually used in the DCF analysis.

¹⁴Marren, op. cit., p. 216.

¹⁰Ibid, p. 214.

¹¹Copeland, Thomas E. and J. Fred Weston, <u>Financial Theory and Corporate Policy</u>, Third Edition, p.39.
¹²Cornell, op. cit., p. 171.

of these components are discounted at WACC. The sum of the present values of the two components equals the company's value.

Numerous approaches exist to estimate the cash flow beyond the forecast period. These include: (1) Price-to-Earnings Ratio Method (P/E Multiple Method); (2) Multiple of Earnings before Depreciation, Interest, and Amortization but after Taxes (EBDIAT Multiple Method); (3) Multiple of Pre-Tax Earnings before Interest, Depreciation and Amortization (EBITDA Multiple Method); (4) Multiple of Earnings before Interest, Taxes and Amortization (EBITA Multiple Method); and (5) Growing Perpetuity Method. Depending on whether the acquirer plans to keep or dispose of the target firm, the calculation of the residual value may differ. If disposal of the target is expected, the acquirer should include a calculation of the tax effects of the sale of the business.

The P/E Multiple Method "is based on the assumption that the equity of the target company will be worth some multiple of its net income at the end of the forecast period."¹⁵ The forecast net income in the last year of the cash flow forecast is multiplied by an estimated P/E multiple that an acquirer would pay for the company. Unfortunately, it is very difficult to predict the appropriate P/E multiples for the company or its industry. Typical analysis uses three to five P/E multiples to provide a range of values.

An alternative to the P/E Multiple Method is the EBDIAT Multiple Method which assumes that "the target company will be worth some multiple of its after-tax cash flow at the end of the forecast period."¹⁶ To estimate the residual value, the after-tax cash flow in

¹⁵Ibid, p. 200.

¹⁶Op. cit., p. 203.

the last year of the cash flow forecast is multiplied by an estimated after-tax cash flow multiple.

Two techniques frequently used by leveraged buy-out firms are the EBITDA Multiple Method and the EBITA Multiple Method. Both methods are based on the assumption that "the target company will be worth some multiple of its pre-tax cash flow at the end of the forecast period.⁴¹⁷ The difference between the methods is that depreciation is excluded from the EBITA multiple.

The Growing Perpetuity Method is based on the assumption that the target company's cash flow will continue to grow after the end of the forecast period.¹⁸ This method requires the estimation of the target company's cash flow in the year after the forecast period ends and the capitalization of this cash flow by a rate equal to the target's weighted average cost of capital (WACC) less the assumed perpetuity growth rate.

$$PV = \frac{CF}{WACC - g}$$

PV	= Present value of growing perpetuity
CF	= Cash flow in year after forecast period
WACC	= Weighted average cost of capital
g	= Growth rate in perpetuity ¹⁹

Once the NPV of the target firm is estimated, however, determining the equity value of the target is not difficult. Deducting the present value of the target's liabilities from the target's NPV yields the value of the target's equity.

¹⁷Ibid, p. 208.

¹⁸Cornell, op. cit., p. 206.

¹⁹Marren, op. cit., p. 205.

IRR analysis, the alternative DCF approach, determines the discount rate that results in the present value of the future cash flows being equal to the acquisition cost of the target.

Each of the methodologies described above has a place in the assessment of a firm's valuation. Several of them are reflected in the testimony associated with this case. For example, CS First Boston (on behalf of the UP) used Comparable Company Analysis, Comparable Transaction Approaches and Discounted Cash Flow Analysis; Morgan-Stanley (on behalf of the SP) used the same methods as CS First Boston in developing their "fairness" opinion (with similar results). For both of these witnesses and for the purpose that it was used, i.e., a "fairness opinion letter" for the stockholders of both companies, this multiplicity of methods is generally considered to be appropriate.

However, from the standpoint of an acquiring company such as UP, the only realistic methods from a management perspective are those which deal with future performance of the target firm (rather than past performance or stock price). Therefore from the standpoint of the acquiring company, of all the methods previously cited, the only applicable methods are NPV and IRR.

ANALYSIS

Net Present Value Method

In the NPV method, all after-tax cash flows in perpetuity are discounted to the present at the corporation's WACC. Each component of this analysis is discussed below. **Cash Flows--**There are three potential sources of future cash flows available to the UP/SP as a result of this transaction:

- From the original UP
- From the acquired SP
- From Synergies

From Original UP--The assumption of this analysis is that the "original UP" remains unchanged as a result of the SP acquisition. Therefore, there are no incremental changes in the cash flow for the merged company attributable to the original UP.

From Acquired SP--For the purposes of this analysis, these are defined as the net annual cash flows from Southern Pacific operations which the Union Pacific would obtain as a result of this merger. The "sources" of cash include operations, sales of property and equipment, net operating losses and changes in working capital. The "uses" of cash include capital expenditures, operations (if a loss is generated) and working capital changes.

The net of these sources and uses of cash are the same as CS First Boston's "unlevered free cash flow."²⁰ Since these numbers were furnished to CS First Boston by UP²¹, we believe they represent UP's expectations for the outcome of this merger.

GRA has made one adjustment to CS First Boston's unleveraged free cash flow numbers. This adjustment is for working capital. An important part of a cash flow analysis is the working capital requirement of the merged company. The

²⁰Month verified statement, p. 495.

²¹Month verified statement, pp. 495-496.

increase in revenue and expenses taken on by the UP as a result of the acquisition will cause changes in UP's working capital. The major components of working capital are cash, short-term investments, accounts receivable and accounts payable. Increases in cash, short-term investments, and increases in accounts receivable represent uses of cash by the company. Increases in accounts payable are a source of cash to the acquiring company

The assumption is made that the merged company will follow the working capital policies of the UP. An analysis was conducted of the Cash, Accounts Receivable, and Accounts Payable accounts for the UP. Table 1 shows the results of this analysis. Cash and Accounts Receivables were compared to revenues, and Accounts Payable were compared to costs. As Table 1 indicates, the UP's policy is to retain about 1.55 percent of Revenue as Cash and Temporary Investments (a cash equivalent), about 8.2 percent of Revenue in Accounts Receivable, and about 7.5 percent of Operating Costs in Accounts Payable.

Table 1 UNION PACIFIC WORKING CAPITAL ANALYSIS							
	1993	1994	Average				
Operating Revenue	7,325.0	7,798.0	N.A.				
Operating Costs	5,831.0	6,203.0	N.A.				
Cash and Temporary Investments	113.0	121.0	N.A.				
Accounts Receivable	593.0	648.0	N.A.				
Accounts Payable	439.0	463.0	N.A.				
Cash & Temp. Invest./Revenue	1.5%	1.55%	1.55%				
Accounts Receivable/Revenue	8.1%	8.2%	8.2%				
Accounts Payable/Costs	7.5%	7.5%	7.5%				

Source: Union Pacific 1994 Annual Report

Table 2 shows the impact of applying these working capital policies to the acquired SP. As this table indicates, the SP acquisition actually "consumes" cash. The company merged requires additional working capital ranging from \$5.3 million to \$23 million annually.

Table 2 UP's WORKING CAPITAL REQUIREMENTS FOR ACQUIRED SP (\$MILLIONS)								
	1994- SP	1996	1997	1998	1999	2000	2001	2002
Cash	54.4	51.3	53.3	55.3	57.5	59.3	61.0	62.9
Accounts Receivable	176.6	271.5	282.0	292.5	304.4	313.5	322.9	332.6
Accounts Payable	151.0	219.8	224.4	230.1	236.7	242.3	248.1	254.0
Net Working Capital	80.0	103.0	110.9	117.7	125.2	130.5	135.8	141.5

Table 3 develops the revised unlevered free cash flow for the acquired SP, adjusted for the working capital change. As can be seen, the unleveraged free cash flow is lower in each year, except 2002.

REDACTED

²²Source: Month's deposition, Appendix 4, p. 39.

Synergies--The acquisition of the SP by the UP will produce certain benefits in the form of increased traffic and reduced costs to the merged system. In addition, there are costs associated with the merger such as capital improvements required for construction of connections, training expenses, etc. These are documented in various parts of UP's application. For the purposes of this analysis, the summary of these synergies contained in CS First Boston's analysis was used.²³ Their analysis identifies the unlevered free cash flow associated with the synergies. Once again, we believe this information represents the UP's actual expectations on the benefits of the merger.

One adjustment has to be made to these numbers: Since the synergies represent either profit improvements caused by traffic diversions (which in turn create revenue increases) or cost reductions, synergies have an impact on working capital. Applying the same methodology as described above working capital changes associated with the synergies were calculated, (i.e., any revenue increase associated with a synergy brought a corresponding increase in working capital requirements). Cost reductions also brought corresponding increases in working capital needs. Table 4 shows the working capital adjustment to the unlevered free cash flow. The difference between Mr. Month's unleveraged free cash flow estimates and the revised estimates are small.

²³Month deposition, Appendix 4, p. 16.

REDACTED

Weighted Average Cost of Capital--The weighted average cost of capital (WACC) has previously been described as the weighted sum of the major components of a corporation's capital structure, i.e., debt and equity. The derivation of the WACC for a company like UP is a complex and imprecise task. Witnesses for UP and SP have indicated that appropriate WACCs for UP lie in the 12 to 14 percent range.²⁴ For this analysis, we have evaluated all costs of capital in the 12 to 14 percent range, in one-half percent increments. Table 5 shows the net present value of the cash flows associated with the acquisition of the SP at various WACCs. This table is developed from the free ash flows shown in Tables 3 and 4.*-*

²⁴See, for example, Verified Statement of Mr. Month, p. 496, Verified Statement of Mr. Runde, p. 513.

Table 5 SUMMARY OF NPV OF UNLEVERED FREE CASH FLOW FOR ACQUIRED SP AND SYNERGIES (\$MILLIONS)							
	12%	12.5%	13.0%	13.5%	14.0%		
NPV	\$4,831.9	\$4,507.4	\$4,217.8	\$3,957.9	\$3,723.4		

The next step is to reduce these NPV cash flows for the acquired debt. The UP is

acquiring \$1.508 billion in debt.²⁵ Table 6 shows the NPV cash flows adjusted for debt.

Table 6 NPV CASH FLOWS LESS DEBT FOR ACQUIRED SP AND SYNERGIES (\$MILLIONS)							
WACC	12%	12.5%	13.0%	13.5%	14.0%		
NPV	\$3,323.6	\$2,999.1	\$2,709.5	\$2,449.6	\$2,215.1		

Finally, the net present value is adjusted to a per share basis. Table 7 shows this calculation based on an estimated 156.24 million shares outstanding.²⁶ It indicates a range of value from \$14.18 to \$21.27 per share for the SP.

Table 7 PER SHARE NPV VALUE FOR ACQUIRED SP AND SYNERGIES									
WACC	12%	12.5%	13.0%	13.5%	14.0%				
NPV	\$21.27	\$19.20	\$17.34	\$15.68	\$14.18				

²⁶Ibid, p. 13.

²⁵Month deposition, Appendix 4, p. 13.

Internal Rate of Return Method

The internal rate of return (IRR) method calculates the rate of return which equates the present value all cash flows over the life of the project. Using the cash flows developed in Tables 3 and 4, the IRR is 11.62 percent as shown in Table 8.

Table 8 IRR CALCULATION @ 11.62% (\$MILLIONS)									
	1995	1996	1997	1998	1999	2000	2001	2002	OUT YRS.
Total Unlevered Free Cash Flow		-\$126.2	\$77.9	\$358.3	\$482.5	\$557.5	\$786.6	\$670.6	\$8,550.6
UP Purchase Expense	-\$976.0	-\$2,928.0							
UP Net Cash Flow	-\$976.0	-\$3,054.2	\$77.9	\$358.3	\$482.5	\$557.5	\$786.6	\$670.6	\$8,550.6
NPV Calc.	-\$976.0	-\$2,736.2	\$62.5	\$257.6	\$310.8	\$321.8	\$406.7	\$310.7	\$3,548.6
Raw NPV	\$1,506.5					-			
Less Debt	\$1,508.3								
Final NPV	-1.8*								

*Approximately equal to zero.

CONCLUSIONS

NPV Approach

The NPV of SP to the UP for WACCs between 12 and 14 percent range from \$14.16 and \$21.27 per share. All of these are below the <u>minimum</u> offer in the merger proposal of \$25 per share. Since the NPV results represent a <u>maximum</u> which a company should be willing to pay for an acquisition, the UP appears to be overpaying for the SP. The amount of the NPV shortfall varies from \$584 million to \$1,691 million depending on the WACC chosen, as shown in Table 9. On an annual basis, the NPV shortfall ranges from \$70 million to almost \$237 million.

Table 9 NPV SHORTFALL (\$MILLIONS)							
WACC (%)	12	12.5	13	13.5	14		
NPV SHORTFALL	\$584	\$907	\$1,196	\$1,456	\$1,691		
ANNUAL SHORTFALL @ WACC	\$70.1	\$113.4	\$155.5	\$196.6	\$236.7		

IRR Approach--An IRR of 11.62 percent is below all of the WACC range for UP as indicated by their witnesses. This further supports the conclusion that the UP offer is in excess of the SP's value.

Implications for Customers

Based on the net cash flow and IRR analyses conducted above, GRA concludes that the UP offer is in excess of the value of the SP. However, it is unlikely that UP would accidentally overpay for an acquisition. Therefore, we conclude that UP intends to obtain a
return from this merger beyond the returns from the acquired SP and the "synergies" identified in the application. In fact, the UP must increase the net cash flow from the merger in order to avoid dilution of its shareholder value. There can be only two sources of these increased cash flows: net revenue increases or cost reductions. Since the cost reductions to be achieved through the merger are well documented in the merger application and UP has conducted extensive analysis to identify potential traffic diversions, GRA can only conclude that the likely source of these additional cash flows will be through increased margins on existing business. These increased margins will be achieved through price increases.

Undoubtedly, the UP will selectively apply price increases to those commodities and traffic lanes which have the lowest demand elasticities (i.e., where they exercise near monopoly power). However, it is difficult to ascertain precisely how much of the UP/SP traffic has low demand elasticity. GRA conducted an analysis to quantify the potential impact on customers. The NPV shortfall as shown in Table 9 ranges from \$584 million to \$1,691 million per year. This equates (at the appropriate WACC) into an annual shortfall range from \$70 million a year to \$237 million per year (also shown on Table 9). When applied to UP/SP's total revenue of approximately \$10.86 billion per year,²⁷ this represents a 0.6 to 2.0 percent freight rate increase (assuming all demand is perfectly inelastic). If, however, it is assumed that some portion of UP/SP's market has relatively high demand elasticities which will prohibit rate increases (i.e., competition is strong), then it is possible that these increases will have to be applied to some fraction of UP/SP's business. Table 10 shows the range of freight rate increases that would occur if they were applied to selected

²⁷Vol. 1, p. 133.

portions of UP/SP traffic ranging. As can be seen from this table, freight rate increases from under one percent to over 21 percent are possible, depending on what portion of the UP/SP business is subject to monopoly power and the WACC assumed for the UP/SP.

POTENTIAL FREI	GHT RATE I	Table 10	RECOUP AN	NUAL SHO	RTFALL	
WACC (%)		12	12.5	13	13.5	14
Annual Shortfall @ WACC		\$70.1	\$113.4	\$155.5	\$196.6	\$236.7
	PERCENT INCREASE IN FREIGHT RATES					
PERCENT TRAFFIC	10%	6.45	10.44	14.32	18.1	21.8
	25%	2.58	4.18	5.73	7.24	8.72
	50%	1.29	2.09	2.86	3.62	4.36
	75%	0.86	1.39	1.91	2.41	2.91
	100%	0.65	1.04	1.43	1.81	2.18

ANALYSIS BASED ON ALTERNATIVE ESTIMATE OF MERGER SYNERGIES

GRA performed a similar analysis to that conducted above on a revised set of synergies associated with UP/SP merger developed by Mr. John Darling. A description of the derivation of these revised benefits is contained in a separate verified statement submitted by Mr. Darling. In his statement, Mr. Darling indicates that there are substantial questions about the synergies to be obtained from the merger and that there are additional costs of the merger that are not accounted for in the UP's application. Table 11 shows Mr. Darling's revised benefit estimate. These revised benefits are in constant 1995 dollars.²⁸ GRA inflated these revised benefits by 3.3 percent per year to make them correspond to our analyses shown in the preceding section. GRA then used these revised benefits in an NPV and IRR analysis similar to that contained in the preceding section. Table 12 shows the results of this analysis. In each year, the free cash flows are much lower than shown in the prior analyses of the proponent's experts. These results are combined with the "acquired SP" results as shown in Table 3 above to develop Table 13 which shows the revised NPV analysis.

Depending on the WACC of the UP, the NPV of the transaction ranges from \$496.8 million to \$1,352.6 million. This corresponds to a value range for the SP from \$3.18 to \$8.66 per share. An IRR analysis indicates a revised IRR of these cash flows of 9.2 percent. Based on this analysis, the UP is paying a <u>substantial</u> premium for SP.

²⁸Darling verified statement.

	Table 11										
	PROPOSED MERGER OF UP AND SP										
		RESTAT	ED SUMM	ARY OF ME	RGER BENEF	IT AND COS	T CLAIMS				
				(\$ N	Aillions)						
	YE	AR 1	YE	AR 2	YE	AR 3	YE	AR 4	YEA	R 5	"Normal"
	Annual	One-Time	Annual	One-Time	Annual	One-Time	Annual	One-Time	Annual	One-Time	Year
	Benefits	Benefits	Benefits	Benefits	Benefits	Benefits	Benefits	Benefits	Benefits	Benefits	Benefits
TOTAL OPERATING BENEFITS	\$128,513	(\$809,586)	\$293,609	(\$757,542	\$378,221	(\$223,585	\$395,360	(\$127,910)	\$397,136	\$9,905	\$397,136
Net Revenue Gains	\$12,550		\$29,283		\$33,466		\$37,649		\$41,832		\$41,832
Totals, with Net Revenue Gains	\$141,062	(\$809,586)	\$322,891	(\$757,542)	\$411,687	(\$223,585)	\$433,009	(\$127,910)	\$438,966	\$9,905	\$438,968
COMBINED ANNUAL TOTALS											
WITHOUT NET REVENUE		(\$681,073)		(\$463,933)		\$154,636		\$267,450		\$407,041	
CLAIMS											

Table 12 ADJUSTMEN'IS TO FREE CASH FLOW FROM SYNERGIES (\$MILLIONS)								
	1994	1995	1997	1998	1999	2000	2001	2002
Month's Free Cash Flow	N.A.	-153.0	-85.3	128.8	328.4	363.4	422.8	424.2
Darling's Adjustment (Inflated)	N.A.	-458.6	-541.3	-185.9	-166.4	-160.0	-143.5	-143.5
Working Capital Adjustment	N.A.	-15.3	-21.2	-10.0	-5.0	-4.0	-1.8	0.0
					~			
Revised Free Cash Flow	N.A.	-627.6	-650.4	-67.3	153.3	195.2	273.1	276.3

Table 13 REVISED NPV CALCULATION						
	12.00%	12.50%	13.00%	13.50%	14.00%	
NPV (\$Millions)	\$1,352.6	\$1,100.9	\$877.0	\$676.8	\$496.8	
NPV/Share	\$8.66	\$7.05	\$5.61	\$4.33	\$3.18	

Table 14 REVISED NPV SHORTFALL (\$Millions)							
WACC (%)	12.00%	12.50%	13.00%	13.50%	14.00%		
NPV SHORTFALL	\$2,554	\$2,806	\$3,029	\$3,224	\$3,409		
ANNUAL SHORTFALL	\$306.5	\$350.7	\$393.8	\$435.9	\$477.3		

- 348 -

IMPLICATIONS FOR SHIPPERS

As discussed above, in order for UP to retain shareholder value, it is essential for them to recoup any premium for the SP acquisition. The only possible way to recoup this premium is through increased prices to shippers. Table 14 shows the NPV shortfalls associated with various WACCs. These can be translated into Table 15, which shows the required freight rate increases necessary to "make up" this NPV shortfall at various WACCs, including different assumptions about the percentage of traffic which could bear rate increases. Table 15 indicates that shippers would suffer freight rate increases ranging from 2.8 percent to almost 44 percent in order to prevent dilution of UP shareholder value.

Table 15 POTENTIAL FREIGHT RATE INCREASE % INCREASE									
WACC (%)		12.00% 12.50% 13.00% 13.50% 14.00%							
		\$306.5	\$350.7	\$393.8	\$435.9	\$477.3			
		ESTIMATED FREIGHT RATE INCREASE							
SUSCEPTIBLE TRAFFIC	10%	28.22	32.30	36.26	40.14	43.95			
	25%	11.29	12.92	14.50	16.06	17.58			
	50%	5.64	6.46	7.25	8.03	8.79			
	75%	3.76	4.31	4.83	5.35	5.86			
	100%	2.82	3.23	3.63	4.01	4.39			

PART 2: BREAK UP VALUE OF THE SOUTHERN PACIFIC

OBJECTIVE

Since the announcement of the proposed merger of UP and SP, numerous other companies have expressed interest in acquiring portions of the SP. GRA was retained by KCS to evaluate these proposals to determine whether SP is more valuable broken up and sold to these other companies or sold in its entirety to UP.

SUMMARY AND CONCLUSIONS

GRA evaluated a number of break up scenarios for the SP. Nearly all of the scenarios studied indicated that the SP was more valuable broken up than if sold intact to UP. Analysis of scenarios involving the sale of a significant portion of the SP indicated a range of premiums from 7.7 percent to 23.9 percent over the value of intact SP.

In a "likely" scenario, a premium of \$727 million over the SP's intrinsic value was obtained through sale of portions of the SP to a combination of the KCS and Montana Rail Link (MRL). This premium represents a 23.9 percent increase in value over the intact SP. In performing this analysis, I did not speak with any of the carriers interested in acquiring the various line segments. Thus, my opinion as to the amount a carrier would be willing to pay for a given SP line segment is based purely on my own analysis.

BACKGROUND

Since the announcement of the proposed UP/SP merger, numerous shippers, carriers and other interested parties have indicated concern over the reduction in competitive service that would result from the merger. Many parties feel that the merger's proposed line sales A number of rail carriers have publicly indicated interest in acquiring portions of the Southern Pacific lines.

These carriers included:

- Kansas City Southern
- Conrail
- Montana Rail Link
- Wisconsin Central
- Gateway Western
- Texas Mexican

In addition to these six carriers, BN/SF has also expressed interest in numerous lines (as

documented in the merger application).

Attached are figures which show the lines of interest to various carriers.

Railroad(s)	Мар
3N/Santa Fe	1
Conrail	2
Kansas City Southern	3
Montana Rail Link	4
Texas Mexican/Gateway Western	5
Visconsin Central	6

This analysis evaluates the price that these carriers either independently or in combination would pay

for these lines and whether it would result in an increased value of the SP to its shareholders, versus the

sale of the SP intact to the UP.

ANALYSIS

GRA's analysis of the SP break up value included three major phases:

- Traffic analysis
- Valuation for acquiring carrier
- Valuation of "residual" SP

Each of these phases are described in detail below.

Traffic Analysis

As part of the overall valuation analysis, it is necessary to identify the benefits that the acquiring carrier would obtain through the acquisition of the lines. These benefits could come from two sources:

- 1. Increased revenue through acquisition of traffic on the lines to be acquired or extensions of length of haul.
- 2. Synergies.

For the purpose of this analysis, GRA assumes that because these acquisitions are "end-to-end," no synergies would accrue to the acquiring carrier as a result of these transactions. Therefore, the benefits to the acquiring carrier must come from net revenue increases from new traffic or length of haul increases. To identify the magnitude of these potential net revenue increases, a traffic study was conducted.

To conduct this traffic study, GRA obtained from Snavely King and Associates an enhanced Carload Waybill Statistics database combined with 100 percent data from 'JP and SP. This data was provided in the form of origin standard point location code (SPLC), destination SPLC, intervening railroads, and junction codes between railroads. These geographic points were converted to FRA rail network nodes using the Transportation Data Sampler--2 CD-ROM from DOT Bureau of Transportation Statistics. GRA then developed a mileage for each link in each carload movement in the file. The specific line segments in which the various carriers had expressed an interest (as shown in Maps 1-6) were then identified. GRA then applied a set of decision rules to this database which allocated traffic to line segments for the acquiring carrier. The purpose of these decision rules would be to identify revenue increases for the acquiring carrier as a result of the acquisition. The decision rules were:

- 1. If the traffic was local to the acquired lines, then the acquiring carrier obtained all of the revenue.
- 2. If the traffic originated or terminated on the acquired line and originated or terminated on the acquiring carrier's lines, the acquiring carrier obtained all of the revenue share allocated to the acquired line.
- 3. If the carload originated or terminated on the acquiring carrier and traversed, as part of its normal routing, an acquired line, then the acquiring carrier obtained an additional share of the revenue based on a "mileage block" division formula.

4. If the acquired line was currently in the route of movement for a carload, the acquiring carrier obtained a division of the existing revenue based on the mileage block formula.

This analysis is conservative in that no provision was made for traffic increases which could be attributable to the acquiring carrier's ability to compete at jointly-served locations.

This revenue allocation approach can be illustrated by an example. Assume that Conrail obtains the line to the Houston area via St. Louis. A shipment is currently moving SP-Conrail from Houston to Pittsburgh and the carload's revenue is \$5,000. Under current division arrangements, the SP obtains (for example) \$3,000 for this move and Conrail \$2,000. The revenue allocation algorithm would assign the SP's \$3,000 as a revenue increase for Conrail. However, assume that there is another car which is currently routed SP-CSX to Pittsburgh. Under this analysis, Conrail would obtain only the \$3,000 in SP revenue, even though Conrail might be able to compete for the entire movement if the Pittsburgh destination is jointly served between CSX and Conrail, i.e., in this analysis, no traffic diversion from CSX to Conrail occurs. Furthermore, if a car is currently moving from Houston to Pittsburgh routed BN-Norfolk Southern, then this analysis attributes no revenue increases to Conrail, even though it might be able to compete effectively for the entire movement.

Using this revenue allocation algorithm, GRA then identified potential revenue increases based on 1994 data for each of the seven carriers previously identified. These are shown in Table 16.

Table 16 1994 DIVERTED REVENUE (\$ Millions)				
Railroad	Revenue			
KCS	225.7			
CR	322.2			
MRL	243.8			
WC	41.0			
GW	8.7			
ТМ	10.5			
BN	636.5			

Determination of Value to Acquiring Railroad

The traffic diversion analysis develops revenue increases for each of the interested carriers. The value of the lines acquired to the respective carrier is developed by a Growing Perpetuity Method based on an estimate of 1996 cash flow for the acquired line. In this method (as discussed earlier in this testimony), the after-tax cash flow from the acquisition is valued at a weighted average cost of capital (WACC). Table 17 shows 1996 revenue, operating ratio and operating income for the acquired lines for the interested carriers.²⁹

From the operating income, it is possible to develop, based on WACCs, a value of the acquired lines to the interested railroads. As pointed out previously, the determination of WACC is, at best, imprecise. Therefore, a range of WACCs was evaluated. Table 18 shows the value of the acquired lines to the interested railroads under a range of WACCs from 12 to 14 percent. As this table indicates, KCS (for example) should be willing to pay between \$535 and \$658 million for the lines in which they are interested.

	Table 17 OPERATING INCOME DERIVATION (\$MILLIONS)						
Railroad	1996 Revenue	Opprating Ratio	Operating Income				
KCS	240.8	0.76	57.3				
CR	343.8	0.84	56.4				
MRL	260.1	0.74	67.6				
WC	43.7	0.74	11.3				
GW	9.3	0.74	2.4				
TM	11.2	0.91	1.0				
BN	679.1	0.84	110.7				

²⁹Operating ratios were unavailable for Montana Rail Link and Gateway Western. Therefore, Wisconsin Central's operating ratio was substituted as representative.

	Table 18 VALUES OF ACQUIRED LINES (\$MILLIONS)						
Railroad	12%	WACC 15%	14%				
KCS	658.8	590.9	535.7				
CR	648.1	581.2	526.9				
MRL	777.4	697.3	632.1				
wc	130.2	116.8	105.9				
GW	27.7	24.9	22.6				
ТМ	11.6	10.4	9 4				
BN	1,272.4	1,141.2	1,034.6				

Valuation of Residual SP

In this calculation, it is assumed that UP will acquire the SP Corporation (at a reduced price) including SP's debt, net operating losses, surplus property, etc., and be integrated into the UP as under the merger application.

UP will obtain only a portion of the synergies that it forecasts in its application. Synergies would be reduced because not all traffic diversions would occur, nor would all the operating cost reductions be available. However, it was assumed that reductions in administrative costs would be obtained as in the merger application.

Table 19 shows a sample of the results of this analysis. This table was constructed using Conrail as an example. In this table, the value of the residual SP to UP is based on a "normalized" year, assuming that Conrail acquires the lines identified in Map 2. SP revenue is adjusted for revenue lost to Conrail, and a revised 1996 operating income is developed. This is adjusted for Other SP Income, Depreciation, Sales of Property, Net Operating Losses (NOLs), Taxes and Capital Expenditures to develop a net cash flow for the residual SP. In a similar fashion, revised synergies are calculated. We then developed the SP value under a number of WACC assumptions, illustrated in Table 20. The value of the residual SP ranges from \$2.3 billion to \$3.4 billion, depending on the WACC selected.

BREAK UP VALUE

Table 21 combines the results of Tables 18 and 20 to develop a total value of the SP (for the Conrail example) and compares that value at various WACCs to the value of

Table 19
SP RESIDUAL VALUE - CONRAIL ACQUISITION
(\$Millions)

SP "Normal" Revenues Less Revenue Loss			3,311.3 <u>343.8</u>
New SP Revenue			2,967.5
Operating Income - SP Other Income - SP			489.6 <u>8.1</u>
Taxable Income Taxes (38%)			497.7 <u>189.1</u>
Earnings After Taxes			308.6
Plus Depreciation			194.4
Property sales (after tax)			36.4
Excess property sales			<u>40.8</u>
Total Cash Inflow			580.2
Less Capital Expenditures			440.4
Net Cash Flow			139.8
Synergies UP Base			409.7
Less: Lost Net Revenue	7.9		
Reduced Operations Savings	27.1		
Car Utilization	1.3		
<u>-36.3</u>		36.3	
Net Synergies			373.4
Total Net Cash Flow			513.1

Table 20 SP VALUE (\$MILLIONS)					
WACCs	12%	13%	14%		
SP Value	5,834.4	5,232.9	4,743.9		
Less: Debt	-1,508.8	-1,508.8	-1,508.8		
Less One Time Expenses	-1,241.8	-1,241.8	-1,241.8		
Plus NOL's	303.0	303.0	303.0		
SP Value	3,386.8	2,785.3	2,296.3		

Table 21 VALUE OF SP WITH CONRAIL ACQUISITION (\$MILLIONS)						
WACCs	SP Only	<u>2%</u> SP/CR	SP Only	3% SP/CR	SP Only	4% SF/CR
SP	3,786.8	3,386.8	3,127.1	2,783.3	2,590.7	2,296.3
CR	-	648.1	-	581.2	-	526.9
Total	3,786.8	4,034.9	3,127.1	3,364.5	2,590.7	2,823.2
Per Share	24.23	25.82	20.01	21.53	16.58	18.07
Percent Increase	6.67%		7.7%		9.07%	

the SP only. It should be pointed out that the value shown in Table 21 for SP only is computed based on the Growing Perpetuity Method. This value is provided for comparison purposes. It is not related to the absolute value of the SP, as developed in the previous section of this statement.

As can be seen from this analysis, the SP's value, with the Conrail purchase, is from 6.6 to 9.0 percent greater than the intact SP, depending on the WACC chosen.

A similar analysis was performed on the lines targeted by other railroads. The premium value of SP for each of the railroads chosen is shown in Table 22.

Table 22 PREMIUMS IN SP VALUE FOR VARIOUS ACQUISITIONS AT 13%WACC		
Railroad	Premium	
KCS	10.5%	
CR	7.7%	
MRL	13.5%	
WC	2.5%	
GW	.5%	
ТМ		
BN	13.0%	

The next step was to evaluate possible combination offers. Since some carriers have expressed interest in lines which are not duplicative, it is possible to break up the SP into more than two pieces. Table 23 shows the results of analyses of several combinations at a 13 percent WACC. We did not include combinations involving Gateway Western or Texas Mexican. In addition, for this analysis BN/SF was not considered as potentially combining with another carrier. As can be seen from Table 23, all of these combinations produce substantial premiums in value versus the value of SP intact. The KCS/Montana Rail Link combination, offering a premium of almost 24 percent in value, seemed most advantageous to SP shareholders. This combination is shown in Map 7.

Table 23 PREMIUM FOR SP FOR COMBINATIONS OF ACQUISITION AT 13% WACC				
Railroad Combination	Premium			
KCS/MRL	23.9%			
KCS/WC	12.8%			
CR/MRL	23.5%			
CR/WC	11.4%			

WACC Analysis

A final concern was that some of the interested carriers such as Montana Rail Link and KCS might have a higher weighted average cost of capital than, for example, UP or BN/SF. A sensitivity analysis of break up premiums for SP to other WACCs was conducted. Table 24 shows the results of this sensitivity analysis. Even with weighted average costs of capital for KCS at 15 percent and for Montana Rail Link at 17 percent, a 14.2 percent premium in SP value is obtained versus intact SP. The case of KCS and WC using WACCs of 14 percent for KCS and 15 percent for WC still produces a premium of 10.4 percent over the value of the intact SP.

	Table 24				
SENSITIVITY ANALYSIS TO WACC					
Carrier Combination	WACC*	Premium			
KCS/MRL	13/13	23.9%			
KCS/MRL	14/16	16.0.0			
KCS/MRL	14/17	15.6%			
KCS/MRL	15/17	14.2%			
KCS/WC	13/13	12.8%			
KCS/WC	14/15	10.4%			

*SP is constant at 13% for this analysis.

CONCLUSIONS

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Based on this analysis, GRA concludes that the SP is more valuable broken up with sales of key lines to other parties than the intact SI would be in a merger with the UP.

The Comprehensive Solution



VERIFICATION

Personally appeared the undersigned John J. Grocki, who under oath states that the information contained in the foregoing Verified Statement is true and correct.

John J. Grocki

Sworn to and subscribed before me this 22 nd day of March, 1996.

Cynthia E. Jones Notary Public

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My Commission Expires: 6/24/97

NOTARIAL SEAL CYNTHIA E. JONES. Notary Public Jenkintown Boro. Montgomery Co My Commission Expires June 24, 1997

JOHN J. GROCKI

Business and Professional Experience

9/93 -Present Executive Vice President, GRA Incorporated

Mr. Grocki has over 25 years experience in management, executive and consulting roles in the Transportation Industry. He has particular experience in planning, railroad operations and valuation. He has served as President and Chief Executive Officer of a short-line railroad, and he has been a Vice President of two nationally-known transportation consulting firms. A representative sample of projects which he has directed include:

- Analysis of numerous proposed and actual mergers and acquisitions of transportation companies. These analyses were performed for carriers, government agencies, financial institutions and potential acquiring companies. For example, Mr. Grocki directed an evaluation of Conrail for Alleghany Corporation as part of their efforts to acquire Conrail from the Federal Government.
- Evaluation of intermodal transportation systems and programs to reduce shipper and carrier costs and improve efficiency. For example, Mr. Grocki directed a study of use of intermodal transportation for a Fortune 100 company that resulted in a 45% reduction in transportation costs for a key segment of the company's business.
- A variety of specialized economic studies in connection with the transportation industry. These included computer modeling of traffic flows, forensic evaluations of transportation accidents, hazardous material handling, ridership studies, rate and pricing studies, and antitrust evaluations of mergers.
- Operations, maintenance and valuation studies of short line railroads.
- Valuation studies of transportation company assets, equipment and infrastructure, as part of acquisition, divestiture and abandonment programs. For example, for Merrill Lynch Leasing, Mr. Grocki directed a valuation study of a fleet of 400 covered hopper cars. This study included condition evaluation, recommendations for a revised maintenance program and fair market value assessment.

John J. Grocki - 2

Oversight of new construction, rebuilding and upgrading programs of railcar fleets. Assignments included boxcars, container cars, tank cars, high capacity gondola cars, open and covered hopper cars and specialized rapid-discharge cars for bulk material handling. For example, for Sierra Pacific Power, Mr. Grocki directed the design and construction of a fleet of specialized, rapid-discharge hopper cars for a dedicated coal movement.

Feasibility and design studies of a variety of integrated transportation systems, such as coal transloading facilities, bulk material handling systems and rail container operations.

Mr. Grocki has testified as an expert witness before the Interstate Commerce Commission and other judicial bodies. He has also served on several Boards of Directors.

Co.

1985-1992 Canonie Incorporated, Vice President Eastern Operations, Canonie Atlantic, Presid ent and CEO (1985-87)

1985-1987 President and Chief Executive Officer - Eastern Shore Railroad, Norfolk, VA.

1980-1985 Vice President - URS Coverdale and Colpitts, New York, NY

1974-1980 Vice President - Gellman Research Associates, Inc., Jenkintown, PA

1973-1974 Vice President-Manager of Industrial Parks - I. Heller Construction Edison, NJ

1970-1973 General Manager, Marketing and Industrial Development - Central Railroad Company of New Jersey, Newark, NJ

1965-1970 Managerial positions with the Penn Central and the New York Central Railroads

Education

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Stanford University, MBA, 1965

California Institute of Technology, M.S., Chemistry, 1964 Worcester Polytechnic Institute, B.S., Chemistry, 1962