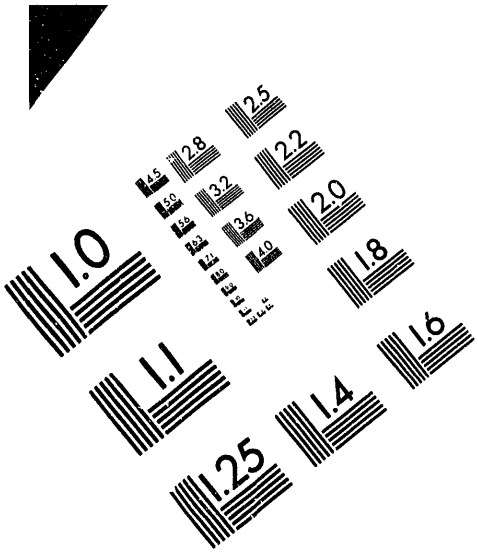

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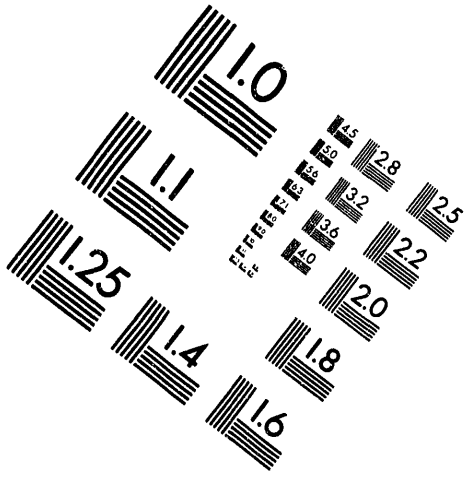

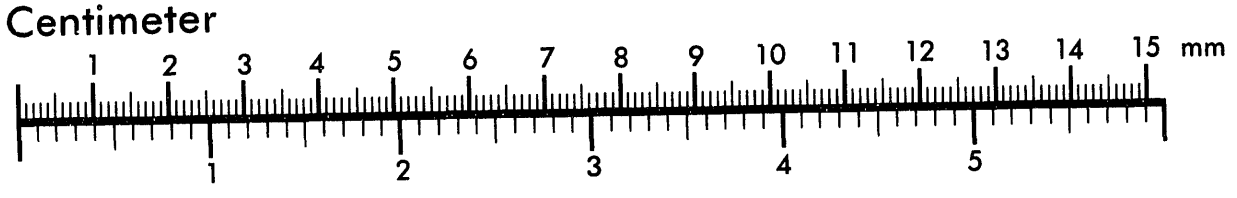

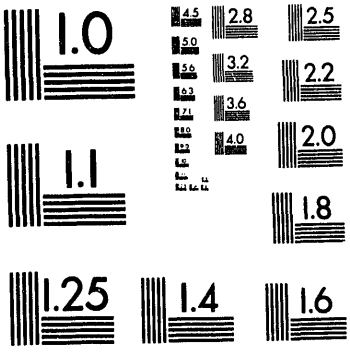

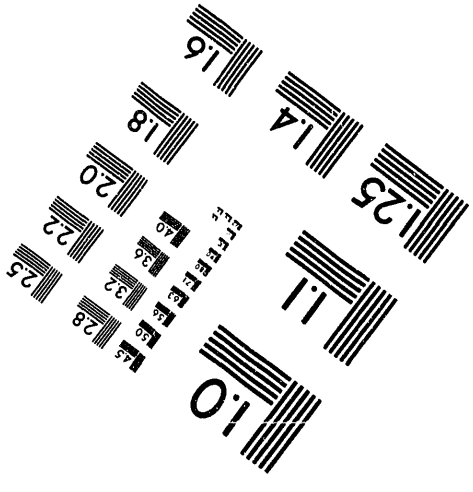

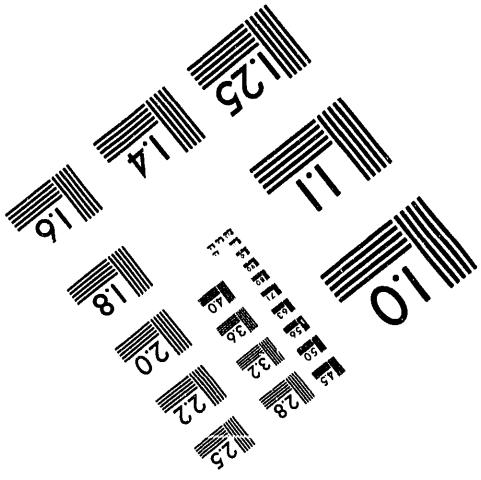

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DOE/CH/10324--T20

RAIL ABANDONMENTS IN THE SOUTH

AND THEIR EFFECT ON NWPA RAIL SHIPMENTS

Prepared for U.S. Department of Energy
under Cooperative Agreement
DE-FC02-87CH10324

by the

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February 1988

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PREFACE

The purpose of this report is to assess rail abandonment activity in the South and how it may affect the transportation of spent fuel and high-level nuclear waste (HLW). The report RAIL ABANDONMENT IN THE SOUTH: IMPACT ON SPENT FUEL AND HIGH-LEVEL NUCLEAR WASTE TRANSPORTATION describes the extent of rail line available in the South and the relative importance rail transportation will play in shipping spent fuel and HLW. The report, however, focuses on the issue of rail line abandonment. The causes and reasons for rail line abandonment are addressed along with the procedures necessary to abandon a line. The exceptions, alternatives and public use concerning abandoned lines are also discussed. Information concerning individual rail abandonments in the South was obtained from the U.S. Interstate Commerce Commission's rail abandonment database. The database was used exclusively due to the lack of consistent and verifiable rail abandonment information from railroad companies and other sources. The report is a work product completed under the terms of the cooperative agreement (DE-FC02-87CH10324) between the Southern States Energy Board and U.S. Department of Energy. As part of its continuing development of rail transportation issues, SSEB expects to update this publication periodically.

1.0 INTRODUCTION

The Nuclear Waste Policy Act (NWPA) of 1982 and its 1987 amendments mandated that the U.S. Department of Energy (DOE) would be responsible for accepting and eventually disposing commercial and defense spent nuclear fuel and high-level radioactive waste beginning in 1998. The transportation of such waste material will require the determination of the mode of transport to be used. The decision over which mode of transport is selected for any given shipment is based upon numerous criteria, including waste material size and weight; shipping distance; economics; risks and safety; shipping cask handling capabilities, limitations, and availability; routing; and public and political input. The alternative modes to transport spent fuel and high-level waste (HLW) focus on truck, rail and possibly barge. The availability of these transportation modes will be critical aspects to the DOE high-level waste transportation and disposal program.

2.0 IMPORTANCE OF SPENT FUEL AND HLW TRANSPORT BY RAIL

While the use of truck transport will continue to be a valuable shipping mode due to explicit regulations and shipping procedures, much of the NWPA transportation activity will be accomplished through the use of the nation's rail system. Railroads can transport heavier loads, with capacities as much as 13 times greater than normal truck capacity.[1] Larger loads mean fewer total shipments and consequently reduced cost[2] and risk.[3] While barge too has a larger capacity than truck, its limited availability at reactor sites and concern over waterway accidents and emergency response difficulties make it a less favorable alternative.

Assuming that reactors with rail access will use such a mode exclusively, approximately 70 percent of the nation's commercial spent fuel shipments would be made directly by rail[4] to a repository or a monitored retrievable storage (MRS) facility, if approved according to the NWPA amendments. Of the South's 27 reactor sites, 19 would ship directly by rail as illustrated in Table 1. Under an MRS scenario, it is projected that an additional 22 dedicated train shipments would be made annually from the MRS to the repository.[5] Defense HLW also has the flexibility of truck or rail shipping modes with all three generating sites, Savannah River Plant, Idaho Chemical Processing Plant and Hanford Reservation, being capable to transport via rail. Therefore, the continued availability of rail transport for spent fuel and HLW will be critical to effectiveness of the federal transportation program.

Table 1

SOUTHERN REACTOR SITES CAPABLE OF RAIL TRANSPORT

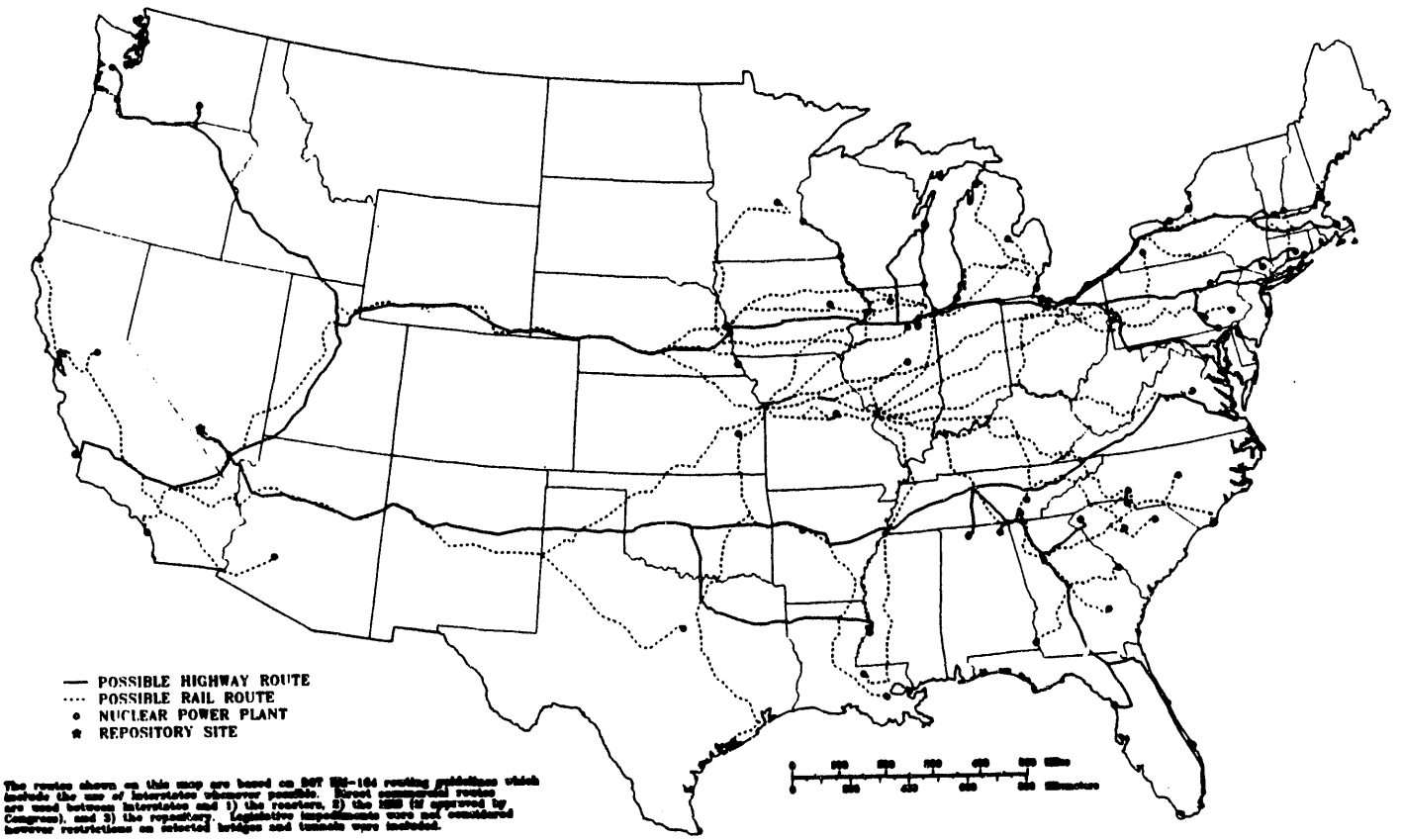
Reactor Site	Location	Reactor Site	Location
Bellefonte 1,2	Scottsboro, AL.	McGuire 1,2	Cornelius, NC.
Farley 1,2	Dothan, AL.	Catawba 1,2	Clover, SC.
Arkansas 1,2	Russellville, AR.	Robinson 2	Hartsville, SC.
Hatch 1,2	Baxley, GA.	Summer 1	Parr, SC.
Vogtle 1,2	Waynesboro, GA.	Sequoyah 1,2	Daisy, TN.
River Bend 3 St.	Francisville, LA.	Watts Bar 1,2	Spring City, TN.
Waterford 3	Taft, LA.	Comanche Peak 1,2	Glen Rose, TX.
Callaway 1	Fulton, MO.	S. TX. Project 1,2	Palacios, TX
Brunswick 1,2	Southport, NC.	North Anna 1,2	Mineral, VA.
Shearon Harris 1	Newhill, NC.		

Source: Spent Nuclear Fuel and High-Level Radioactive Waste Transportation Primer, Southern States Energy Board, July 1987, p.2-12.

A rail routing model was developed by Oak Ridge National Laboratory to simulate potential rail route networks and track classifications for transporting radioactive materials. The INTERLINE system has generated likely rail routes from all commercial reactors to a Yucca Mountain, Nevada repository site. A map of possible rail as well as highway routes from reactors to the Nevada repository is displayed in Figure 1.

Figure 1

HIGHWAY AND RAIL ROUTES FOR SHIPMENTS FROM ALL REACTORS TO A REPOSITORY IN YUCCA MOUNTAIN, NV



MAP DOES NOT REPRESENT SELECTED OR DESIGNATED ROUTES.

According to the INTERLINE rail routing model, the amount of rail involved in transporting commercial spent fuel from each reactor to the Yucca Mountain repository site would be 124,294.8 track miles. Track miles represent the combined distance from each reactor site to Yucca Mountain. The type of track traveled by spent fuel shipments would range from heavily used mainline track to lesser used branchline track. Mainline track travel would account for the large majority of the type of track used during shipping. Southern reactors, for example, would utilize mainline track for over 95 percent of their shipments. Table 2 provides a breakdown of each southern reactor's rail distances and track descriptions to the Yucca Mountain repository site.

Table 2

SOUTHERN REACTOR RAIL ROUTE DESCRIPTIONS TO YUCCA MOUNTAIN, NV

REACTOR	REACTOR STATE	DESTINATION	DISTANCE	A-M	B-M	A-BR	B-BR	OTHER
Bellefonte 1,2	AL	Yucca Mtn, NV	2,591.3	2,182.9	309.9	10.0	3.5	85.0
Farley 1,2	AL	Yucca Mtn, NV	2,945.0	2,381.1	402.4	72.0	4.5	85.0
Arkansas One 1,2	AR	Yucca Mtn, NV	2,052.6	1,822.6	145.0	0.0	0.0	85.0
Hatch 1,2	GA	Yucca Mtn, NV	2,887.5	2,381.1	299.4	109.0	13.0	85.0
Vogtle 1,2	GA	Yucca Mtn, NV	2,922.6	2,381.1	433.0	10.0	13.5	85.0
River Bend 1	LA	Yucca Mtn, NV	2,181.5	1,632.5	406.0	35.0	21.0	85.0
Waterford 3	LA	Yucca Mtn, NV	2,596.7	2,198.7	313.0	0.0	0.0	85.0
Brunswick 1,2	NC	Yucca Mtn, NV	3,018.9	2,904.9	0.0	0.0	29.0	85.0
Harris 1	NC	Yucca Mtn, NV	2,948.2	2,860.2	0.0	0.0	3.0	85.0
McGuire 1,2	NC	Yucca Mtn, NV	2,783.1	2,262.1	423.7	8.5	3.8	85.0
Catawba 1,2	SC	Yucca Mtn, NV	2,807.9	2,324.5	372.4	10.0	16.0	85.0
Robinson 2	SC	Yucca Mtn, NV	2,851.0	2,643.0	114.0	0.0	9.0	85.0
Summer 1	SC	Yucca Mtn, NV	2,767.9	2,228.5	440.4	10.0	4.0	85.0
Sequoyah 1,2	TN	Yucca Mtn, NV	2,525.9	2,124.5	299.4	10.0	7.0	85.0
Watts Bar 1,2	TN	Yucca Mtn, NV	2,490.9	2,089.5	299.4	10.0	7.0	85.0
Comanche Peak 1,2	TX	Yucca Mtn, NV	1,679.5	1,503.5	80.0	0.0	11.0	85.0
South Texas 1,2	TX	Yucca Mtn, NV	2,599.2	2,317.9	188.8	0.0	7.5	85.0
North Anna 1,2	Va	Yucca Mtn, NV	2,774.6	2,264.7	398.2	19.7	7.0	85.0
Totals			47,424.3	40,503.3	4,927.0	304.2	159.8	1,530.0
Percent				85.41%	10.39%	0.64%	0.34%	3.23%

A-M A - Mainline Track (20+ million gross tons/year)
B-M B - Mainline Track (5-20 million gross tons/year)
A-BR A - Branchline Track (3-5 million gross tons/year)
B-BR B - Branchline Track (1-3 million gross tons/year)
OTHER Local branchline track spur to Yucca Mountain, NV site (less than 1 million gross tons/year)

Source: Atlas of Routes for NWPA Commercial Spent Fuel Shipments in the South, Southern States Energy Board, July 1987, p.25.

3.0 STATUS OF RAIL AVAILABILITY

As noted earlier, the availability and service of rail to the country's reactor sites and defense waste facilities will be of great importance to the DOE high-level waste transportation and disposal programs. While reduced governmental regulation and increased market competition have generally improved the railroads' financial health, service and quality of track and equipment, there has been a decrease in the total amount of existing track and new rail laid have been decreasing.

3.1 Class I Railroads

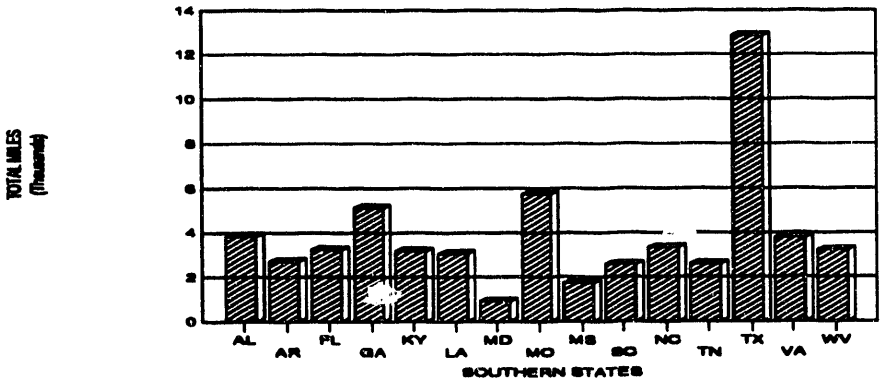
According to statistics collected by the Association of American Railroads (AAR), there are currently 16 reporting Class I railroad companies.[6] Class I railroads are defined by the Interstate Commerce Commission (ICC) as those with annual operating revenues of at least $88.6 million (the revenue criteria are indexed annually). The 16 Class I railroads compose nearly 90 percent of the industry's freight (tonnage), 93 percent of its revenues, 90 percent of its employees and about 85 percent of total railroad mileage.[7]

The railroad mileage operated by Class I railroad companies in the United States totalled 159,360 miles in 1985. The total mileage accounts for Class I roads as identified by each state and does not duplicate tracks nor include yard tracks and sidings. Texas has by far the largest amount of road with 12,853 miles. The 16 southern state region has over 36 percent of the U.S. total Class I mileage. Figure 2 shows the railroad mileage for each southern state in 1985.

Figure 2

RAILROAD MILEAGE IN SOUTHERN STATES

CLASS 1 RAILROADS. 1985



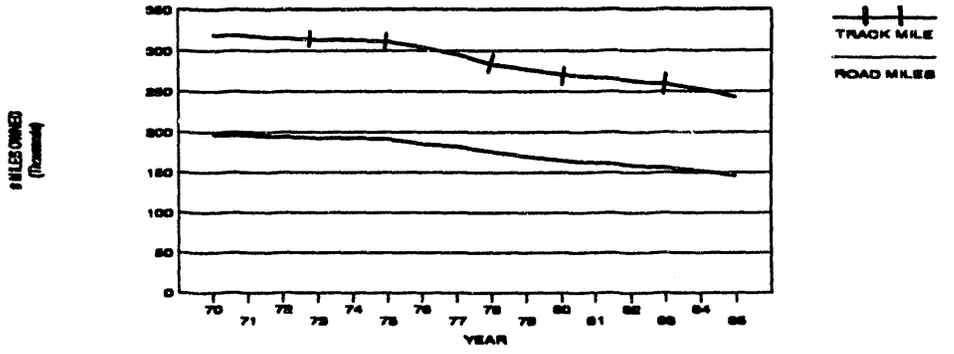
Source: Railroad Facts 1986, Association of American Railroads, September 1986, p.43.

Over the past several decades, however, the numbers of Class I railroads and the miles of railroad lines and track owned by Class I's have declined significantly. In 1975 there were 73 Class I railroads compared to today's 16. In addition, from a recorded 1929 peak of 229,530 road miles and 381,417 track miles owned by Class I railroads, the total road and track mileage owned in 1985 is 145,764 and 242,320, respectively.[8] Figure 3 illustrates an approximate 25 percent drop in miles of road and track between 1970 and 1985.

Figure 3

MILES OF ROAD AND TRACK OWNED

CLASS 1 RAILROADS, 1970 - 1985



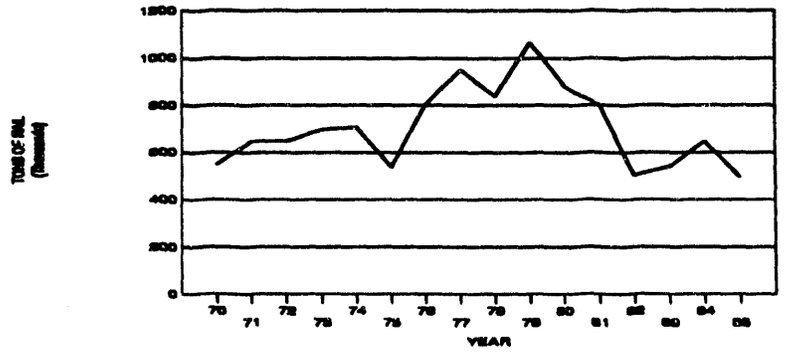
Source: Railroad Facts 1986, Association of American Railroads, September 1986, p.42.

In 1985 Class I railroads laid 496,039 tons of new rail in replacement and in additional track according to the AAR. This total, however, is significantly less than the 2,281,316 tons in 1929 and more than 53 percent under the 1,064,827 tons of new rail laid in 1979.[9] While in 1985 capital expenditures for roadway and structures by Class I railroads accounted for its highest spending amount in a single year, 1985 also represented the lowest annual spending amount for new track laid. Figure 4 shows the yearly trends in the number of tons of new rail laid by Class I railroads since 1970.

Figure 4

NEW RAIL LAID

CLASS 1 RAILROADS, 1970 - 1985



Source: Railroad Facts 1986, Association of American Railroads, September 1986, p.52.

The dramatic change in Class I railroad company operations and structure focuses on the intense competitive pressures the industry continues to face. Class I railroads have been adversely affected by numerous events including:

- greater truck competition using larger trailers, improved fuel efficient operation, fewer labor conflicts and a universal highway network;
- shifting of industrial and manufacturing facilities closer to market consuming areas;
- greater foreign competition with U.S. industry;
- changes in the U.S. economy which now are more service-oriented than production-based, and are generating products smaller in size and weight; and
- reduced leverage to negotiate prices with economically powerful customers.

Because of these pressures, the Class I railroads have undergone great organizational and structural changes to remain competitive. The railroad companies have geared their operations to increase productivity and economic efficiency. The reduction in numbers of Class I's is similar to what has happened in other highly competitive, deregulated industries. The fewer number of railroad companies is also the result of acquisition and merger of huge corporation conglomerates and transportation companies. Because of the great competitive pressure and need to demonstrate financial viability to both stockholders and corporate management, these railroad companies have been forced to improve service while at the same time cut costs. In order to accomplish this task, Class I railroads have endeavored to modernize their systems. The railroads have also reduced labor costs by cutting personnel and eliminating less profitable operations. Among these operations is the selling and abandoning of uneconomic track.

3.2 Short Line and Regional Railroads

While there is no formal definition of a "short line" or "regional" railroad, these terms are generally associated with Class III and Class II railroads, respectively. Class II railroads include those with annual revenues between $17 and $88 million and currently number about 25.[10] The U.S. Department of Transportation's (DOT) Federal Railroad Administration further distinguishes regional railroads as having greater than 250 miles of road.[11] Class III railroads have revenues under $17 million annually and total more than 400.[12]

While no comprehensive, industry-wide data is available on short line or regional railroads, the Interstate Commerce Commission (ICC) Office of Transportation Analysis has collected information concerning 195 railroads that have initiated operation since 1980. Among the total are 183 short lines and 12 regional railroads.[13]

According to the ICC study, the identified short line railroads operate on approximately 7,600 miles of rail line which accounts for under five percent of the total mileage all classes of railroad in 1986. Nearly half of the shortlines are 25 miles or less in length. Table 3 lists the short line railroads in the ICC study by mileage.

Table 3

DISTRIBUTION OF SHORT LINES BY MILEAGE SINCE 1980

Length of Line (miles)	Number of Railroads	Percentage of Railroads	Total Miles	Percentage of Total Miles
1 - 5	30	16.4	81	1.1
6 - 10	20	10.9	172	2.3
11 - 25	36	19.7	586	7.7
26 - 50	44	24.0	1,542	20.3
51 - 75	17	9.3	1,029	13.6
76 - 100	15	8.2	1,297	17.1
Over 100	21	11.5	2,884	38.0
Total	183	100.0	7,591	100.0

Source: Heather J, Gradison, Chairman, Interstate Commerce Commission, testimony before the U.S. House of Representatives, Committee on Energy and Commerce, Subcommittee on Transportation, Tourism and Hazardous Materials, October 1, 1986, p.5.

Of the 183 short lines established since 1980, they cover some 40 states with the heaviest concentration in the Northeast and South. While Pennsylvania had the greatest number of new shortlines (21), Tennessee (9), Mississippi (8) and North Carolina (7) had the most new shortlines in the southern region. Shortlines haul predominantly bulk commodities with a mean volume of approximately 4,000 carloads per year.[14]

The ICC study stated that the majority of short lines consider their interaction and relationship with larger connecting railroads as satisfactory or better. Short lines found their larger connecting carriers to be cooperative and provide numerous helpful services. Since the division of freight costs are essentially negotiated and completed at the time a short line is first formed, most short lines have not experienced significant problems associated with divisions.

Among the 12 regional railroads in the ICC study, their operations cover 6,027 miles, ranging from 280 to 824 miles. They also carry an average 62,000 carloads per year. Like short lines, regional railroads handle bulk cargo such as coal, lumber, and agricultural products, but they also carry a greater amount of manufactured goods in either box cars or trailers-on-flatcars.[15] The 12 regional railroads include several southern lines such as:

- Gulf and Mississippi Railroad Corporation,
- Midsouth Rail Corporation,
- Paducah and Louisville Railroad, and
- Chicago, Missouri, and Western Railroad.

The success of shortline and regional railroads is generally attributable to a stable or growing market, lesser labor costs and greater labor productivity. Short line and regional railroads are focused on railfreight transportation and provide service where larger railroads can not operate profitably. Short lines and regionals basically operate as low cost feeder and distribution systems in association with larger railroads. Because of this, short lines and regionals are usually complementary and not competitive to Class I railroads.

4.0 REASONS AND ISSUES FOR RAIL ABANDONMENTS

The decline of the railroad industry and increase in rail abandonments can be traced back over 100 years. Initially, railroads were regulated primarily by individual states. Conflicting and inconsistent actions by the states led to the Supreme Court's landmark decision prohibiting state regulation of interstate commerce. The Interstate Commerce Act of 1887 created a federal agency to regulate rail freight rates. The Hepburn Act of 1906 and the Transportation Act of 1920 then empowered the Interstate Commerce Commission to establish maximum and minimum rail rates, respectively, if it determined that challenged rates were unreasonable. Other governmental controls continued to increasingly restrict rail operations while truck and barge competition expanded into rail markets.

By the 1970s, nearly a quarter of the nation's rail system neared bankruptcy or reorganization.[16] Railroads were forced to delay maintenance and capital improvements resulting in unreliable and reduced service as well as safety problems. The problems in the northeast forced the U.S. government to step in and pay some $7 billion to purchase and establish Conrail. This action set the stage for possible nationalization of the entire rail system.

Instead of nationalizing the country's railroads at an estimated cost of at least $100 billion, Congress chose to reduce some of the stifling regulatory restraints through corrective legislation. The Railroad Revitalization and Regulatory Reform Act of 1976 (4 - R) provided some regulatory relief but was not very effective due to ICC interpretations of the Act.

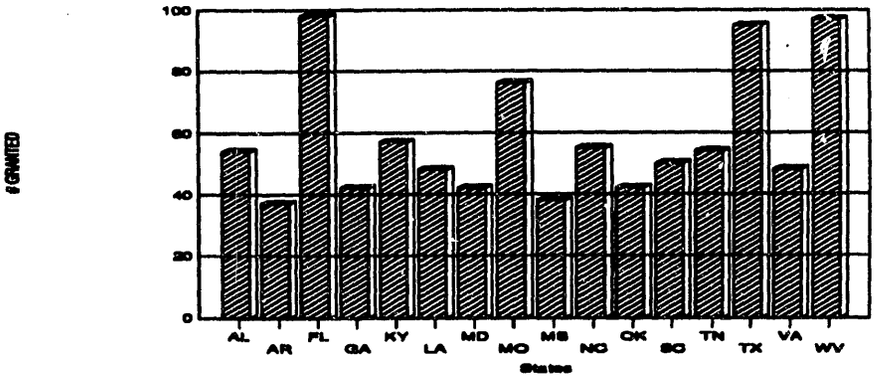
The major breakthrough for rail deregulation came with the Staggers Rail Act of 1980. The Act partially deregulated rail rates and allowed market forces to help determine reasonable rates. The ICC was given a large amount of discretionary authority for developing many of the Act's provisions. Some of the important provisions included:

- exemption of certain rail traffic from regulation by the ICC;
- individually negotiated contracts between railroads and shippers;
- guidelines for developing adequate levels of revenue; and
- procedures for rail line abandonment.

While the Staggers Act quickly helped to improve the financial stability, service and competitiveness of the rail industry, it also eased and accelerated the rail abandonment process. The South was directly linked to the national trend of increasing numbers and miles of ICC granted rail abandonments. Figure 5 shows the number of rail abandonment miles granted in the South since 1960. Figure 6 illustrates the number of rail abandonment cases granted per year in 16 southern states beginning in 1960.

Figure 5

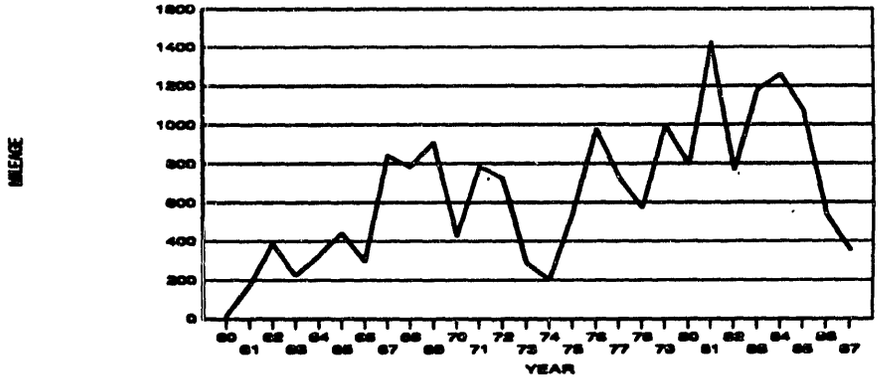
TOTAL MILES GRANTED PER YEAR
1960 - 1987 SOUTHERN STATES



Source: U.S. Interstate Commerce Commission, November 2, 1987.

Figure 6

TOTAL RAIL ABANDONMENTS GRANTED
1960 - 1987 SOUTHERN STATES



Source: U.S. Interstate Commerce Commission, November 2, 1987.

The preceding figures show that as the financial and operational health of the railroads in the South eroded, more and more miles of track and cases were allowed abandoned by the ICC . The brief drop in rail abandonments in the 1973 to 1975 timeframe can be primarily attributed to the creation of the Conrail system which halted rail abandonments in a few southern states, including Maryland, Virginia and West Virginia. The number of granted abandonment cases immediately following implementation of the Staggers Act of 1980 jumped dramatically between 1982 and 1985. The reason for the increase in abandonments resulted from the railroad companies' efforts to "clean house" and remove line segments that had little or no traffic on them or were losing great sums of money and had no significant opposition. According to the ICC Guide for Public Participation in Rail Abandonment Cases Under the Interstate Commerce Act (1986), however, many recent railroad applications for rail abandonment have since involved line segments which have incurred only marginal losses.[17] Correspondingly, the level and intensity of opposition to such cases has risen greatly. Table 6 shows the national increase following the Staggers Act of 1980 and than the general decrease starting in fiscal year 1985.

Table 4

RAIL ABANDONMENTS IN THE U.S.
FY 1981 - 1987

Fiscal Year	No. of Abandonment Applications Filed	Miles of Abandonment Applications Filed
1981	161	3,219
1982	382	4,821
1983	178	3,702
1984	472	3,878
1985	138	2,877
1986	141	1,891
1987 (to 03/03/87)	35	520

Source: Bruce Flohr, testimony before U.S. House of Representatives, Committee on Energy and Commerce, Subcommittee on Transportation, Tourism and Hazardous Materials, October 1, 1987, p.9.

The basic issue in deciding rail abandonment cases focuses on the statutory standard which determines whether "the present or future public convenience and necessity require or permit the abandonment." 49 EU.S.C. 10903(a)(2). The ICC and courts have defined this to mean that the ICC must weigh the concerns and interests of the local area and shippers with the financial burdens such lines place on railroads themselves. Railroads would need to show the "opportunity costs" of owning and operating the rail line. These costs include the amount of assets in track, land, materials and maintenance in the line segment compared with financial benefits and earnings if such resources could be used for alternative purposes. Recently, however, the ICC refused to grant abandonment solely on opportunity cost losses alone.[18] Provided that the railroad demonstrates loss or burden, then the ICC reviews the protestant's evidence.

The ICC, under the Interstate Commerce Act, must decide whether the abandonment "will have a serious, adverse impact on rural and community development." 49 USC 10903(a)(2). Protestants over rail abandonment applications generally include shippers (industry, farms, business), developers, political and Chamber of Commerce officials. Such individuals are likely to argue over lost business and jobs as well as planned development and expected future economic growth and increased rail use.

A critical factor used by the ICC to resolve abandonment cases focuses on the previous or possible use of alternative transportation modes. The use of truck or barge may adequately replace rail use unless it is prohibitively expensive or infeasible to local road or waterway conditions. The issue of alternative shipping options needs to be fully understood and analyzed by protestants.

5.0 RAIL ABANDONMENT PROCESS

The process that a railroad must follow in order to abandon a rail line is established under the revised Interstate Commerce Act and found under CFR Part 1152. The regulations provide specific procedures for a railroad to abandon a line and discontinue service. The ICC is the authority that determines if a certificate of public convenience and necessity shall be issued. The abandonment process involves several steps and includes specific timeframes for each step. The ICCs Guide for Public Participation in Abandonment Cases identifies several critical aspects that reflect the rail abandonment process.

5.1 System Diagram Map

The system diagram map, as mandated under section 10904(e) of the Interstate Commerce Act, provides the first indication of a railroads plans to "potentially" or definitely abandon a line. In 49 CFR 1152.10, the ICC requires that a railroad identify all lines that it expects will be subject to abandonment application within three years as well as lines potentially subject to abandonment. A railroad seeking to abandon a line must notify the public at least four months prior to filing an abandonment with the ICC. It is during this time that shippers, local and state government and interested parties generally organize their opposition and identify alternatives to abandonment.

As required under 49 CFR 1152.12, the railroad must file with the ICC and publish in a newspaper of general circulation in each county a system diagram map containing and identifying the proposed abandoned line. The ICC and Governor's, public service commission's (or relevant agency) and designated state rail agency in each affected state shall receive color-coded system diagram maps which fully describe all of the company's rail lines, state and county boundaries, and standard metropolitan statistical areas and cities (over 5,000 population) within five miles of the carrier's rail lines. Rarely do railroads list lines which are potentially subject to abandonment.

5.2 Notice of Intent to Abandon

In addition to the system diagram map, the ICC requires the railroad to file a "Notice of Intent to Abandon" (49 CFR 1152.20). The notice contains specific information concerning the abandonment, when and how to file a protest, and opportunities to subsidize or purchase the proposed abandonment. In addition to publishing the notice every week for three weeks in local newspapers, the notice must also be served to the 10 largest shippers on the affected line, other significant users, the State rail transportation planning agency, and be posted at each agency station and terminal along the line. The posting and publication of notice is required at least 15 to 30 days before the actual filing date.

5.3 Abandonment Application

The actual application for rail line abandonment is filed with the ICC and is available to interested parties from the carrier. The application generally contains comprehensive and voluminous information concerning the proposed abandoned line's costs and revenues as well as the railroad company's financial condition. As required under 49 CFR 1152.22, the application must contain specific data regarding the carrier, condition of the proposed abandoned properties, rail services provided by the railroad, revenue and cost data, rural and community impact, environmental impact, passenger service and the carriers financial condition.

5.4 Public Participation to the Proposed Abandonment

Within 30 days of the application for abandonment filing, written comments, protests and replies may be directed by public to the ICC concerning the rail abandonment. The ICC has within 45 days of the filing to determine whether an investigation of the proposed abandonment is

necessary. If the ICC does not investigate the abandonment application, it will decide on the record collected within 75 days of the filing date. In such instances, the ICC generally grants the abandonment. The decision for an investigation, however, simply means that both the applicant and protestants are allowed additional time to supply more detailed and verified statements concerning the abandonment.

The ICC bases its decision to investigate the abandonment proposal on several important factors, including the amount of opposition, the intensity of the protests and the political back-lash to the proposal. However, the ICC may still not investigate or hold hearings if the opposing evidence is not directly associated with the application.

5.5 Modified Procedure and Oral Hearings

When the ICC determines that an investigation is necessary, it will then establish proceedings for "modified procedure" or oral hearings. A modified procedure is solely based on written testimony and evidence while an oral hearing provides direct testimony and cross examination. Again the ICC decides on the need for either modified procedure or oral hearings regarding the complexity of the case and the necessity through which the investigation can be best resolved.

The schedule for a modified procedure or oral hearing begins with the first 15 days after the investigation order that the rail applicants verified statements (including notarized signature) are due. The protestant's verified statements are due within 40 days. Only in a modified procedure are applicant's allowed to reply or rebut within 55 days of investigation start. The close of evidence is 135 days after the ICC investigation begins.

5.6 Initial Abandonment Decisions and Appeals

The ICC must issue its initial decision within 165 days after the application is filed. Within 20 days of the initial decision, an appeal may be filed with the ICC. The ICC then decides within 30 days of the initial decision if the matter is of general transportation importance, contains new evidence, changed circumstances, or has material error. If the appeal is accepted, the ICC then allows for replies to be filed within 15 days of the appeal decision. The final decision, however, must be determined by the ICC within 255 days of the application's first filing and published in the Federal Register. Following all exhaustive administrative actions concerning the ICC decision, parties may then take the case to the United States Court of Appeals. Figure 7 displays the time requirements for rail abandonment applications.

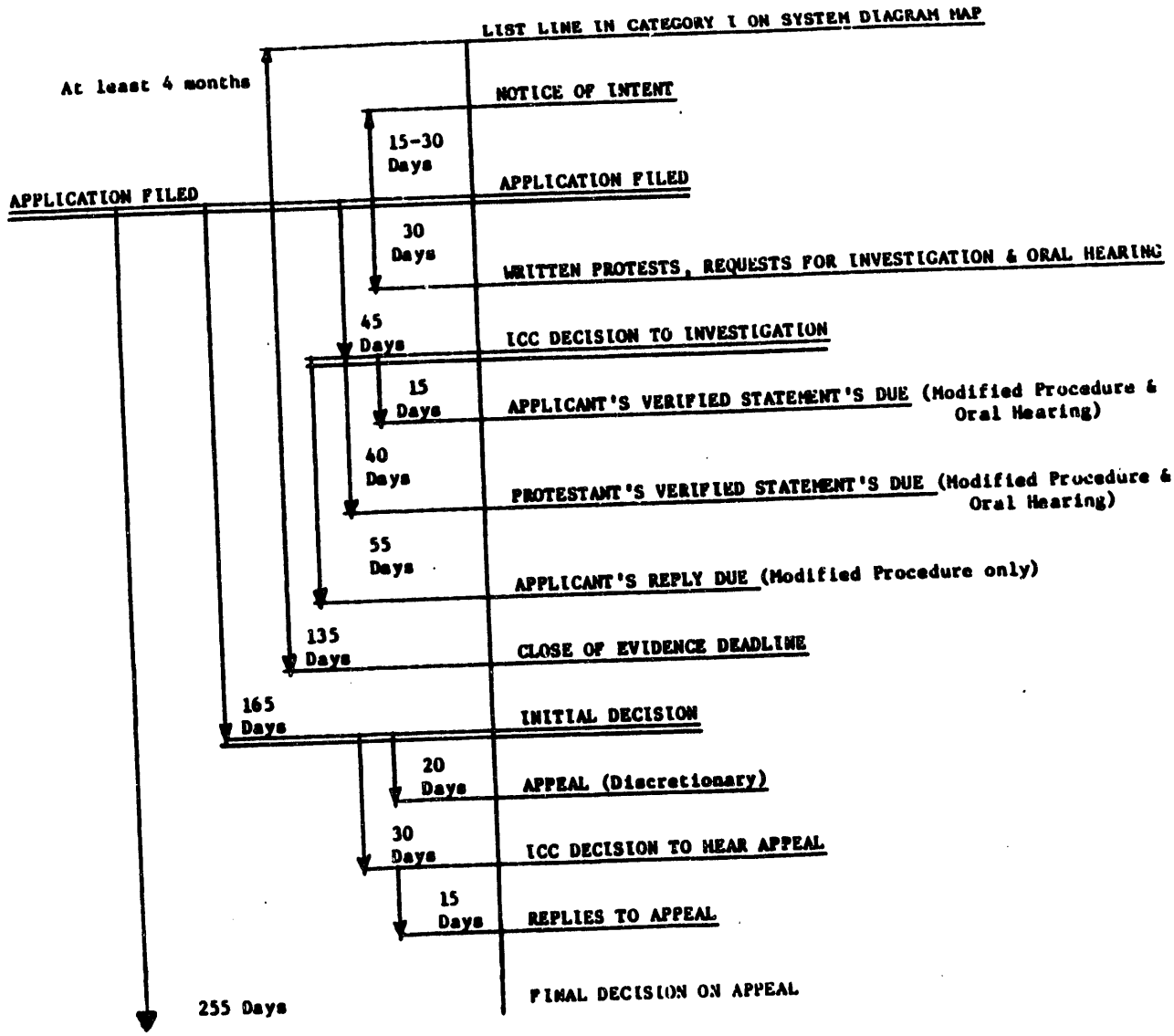
5.7 Exemptions to the Rail Abandonment Process

Exemptions are often used by the railroad industry as an exception to the formal rail abandonment process. Under 49 U.S.C. 10505(a), the ICC is authorized to exempt from the formal abandonment process any lines it finds that regulation "is not necessary to carry out the transportation policy" and the abandonment is either of "limited scope" or "not needed to protect shippers from abuse of market power." While exemptions are generally sought by railroads for lines which are not being used, some petitions have been filed for lines which have carried some traffic.

Exemption petitions only require railroads to provide an environmental notice of abandonment to the appropriate state environmental agency where the abandonment is proposed. No Notice of Intent to Abandon or system diagram map notice is required. The exemption petition includes only a brief description explaining that the railroad is losing money on the line and that little or no traffic use the line. The ICC decides exemption cases on the information in the petition and often before there is any public notice of the proposal. If the ICC finds that there are apparent adverse effects in the petitions, it may adopt a motion for reconsideration and publish a notice of the proposed exemption in the Federal Register and request comments.

Figure 7

SCHEDULE REQUIREMENTS FOR RAIL ABANDONMENT APPLICATIONS



Source: A Guide for Public Participation in Rail Abandonment Cases Under the Interstate Commerce Act, U.S. Interstate Commerce Commission, Office of Public Assistance, December 1986, Appendix C.

If the ICC grants an exemption, the decision is published in the Federal Register and the exemption becomes effective 30 days following the notice, unless special conditions make it effective sooner. Any motions for a stay of exemption or petition for reconsideration by protesters must be made within 10 and 20 days, respectively, of the Federal Register notice. If the ICC denies the proposed exemption, the railroad may then use the formal abandonment process.

5.8 Public Use of Abandoned Rail Property

What may influence the rail abandonment process is if community groups and local governments desire to use abandoned rail right-of-ways for their own purposes, such as highways and recreational trails. Following the ICCs decision to grant an abandonment proposal, 49 U.S.C. 10906 requires the ICC to establish whether the rail properties are appropriate for public uses. If the ICC recognizes possible public use benefit, interested parties are allowed to negotiate with the railroad for the rail rights-of-way for up to 180 days. However, the railroad is not required to sell the abandoned property for public use.

The National Trails System Act Amendments of 1983 provides an additional public use of abandoned rail property. During the abandonment process, interested parties may file comments requesting that the abandoned rights-of-way be used for recreational purposes. The voluntary agreement between railroad and trail-use party would require the trail developer to assume responsibility for the trail's management, paying of property taxes and any liability associated with its use. The railroad, meanwhile, would salvage the track and discontinue service. As part of the agreement, however, the railroad could at a later date reclaim the right-of-way and resume rail service on the line. Again, the trail developer would be allowed 180 days to negotiate a trail use agreement otherwise the railroad could abandon the line and dispose of the property.

6.0 ABANDONMENT ALTERNATIVES THROUGH SMALL RAILROADS

As noted earlier, since 1980 there has been a dramatic growth in the number of newly formed small railroads, so called short lines and regionals. Initiated by the Staggers Rail Act of 1980, the feeder railroad development program was created by Congress (49 U.S.C. 10910) to enable shippers, communities or other interested parties to purchase or subsidize rail lines prior to the filing of an abandonment application. The advantage of such an alternative would be to allow the railroad the opportunity to recover some financial benefit over simply abandoning the line. In addition, it saves the time and expense of the abandonment process and deterioration of the line. Perhaps most importantly, the buyer may be exempt from most ICC regulations under 49 CFR.

Under the regulations, any financially responsible person (i.e., capable of paying the constitutional minimum value of the line and operate it for more than three years) may direct the ICC to sell a rail line on a railroad's system diagram map subject to abandonment within three years or potentially subject to abandonment. Once the ICC publishes its abandonment notice in the Federal Register, offers to subsidize or purchase the line must be made within 10 days. If a negotiated price can not be agreed upon, the ICC may be asked to establish the terms of the purchase or subsidy. The terms are binding unless the purchaser decides not to acquire the line.

The ICC also recognized a need to expedite acquisition procedures for short line and regional railroads allowing them to take advantage of favorable financing and assure uninterrupted service. In January 1986, new ICC procedures (49 CFR 1150.31; Ex Parte No. 392-Sub-No.1) allowed most short line and regional railroad acquisitions to be consummated after a notice is published in the Federal Register for seven days. The application procedures for beginning small railroads are addressed in the ICC publication So You Want To Start A Small Railroad (August 1987).

Legislation to change how small railroads operate was introduced during the 100th Congress. The success of many small railroad transactions is tied to the ICCs ability to exempt labor protection for such railroads making them more economical. Since the Class I railroad industry is the only business in the U.S. mandated to pay expensive labor protection, the growth in short line and regional railroads would likely stunt their growth and thereby increase the number and miles of abandonments. There is also controversy regarding the size of regional railroad sales which may have expedited transactions minimizing opportunities for public comment or review. Finally, some

concern exists over the November 1982 action by the Federal Railroad Administration (FRA) to lessen FRA track standards on light density agriculture branch lines which carry no passenger traffic and travel at speeds less than 10 miles per hour. It is uncertain if such lower standards might affect low density lines serving reactor sites. To date, however, no action has been taken on any bills which would change the current conditions governing small railroads.

While small railroads may ensure continued service to rail-capable nuclear reactor facilities, the Staggers Act encourages direct contracts between shippers and carriers thus allowing greater rate-making freedom. The railroads may negotiate rates with nuclear waste shippers (e.g., DOE, nuclear reactor facilities) based on competitive trucking rates instead of less costly market rates among competing railroads. Thus, abandonment or not, rail availability through small railroads could likely mean increased costs to low volume nuclear waste shippers.

7.0 RAIL ABANDONMENTS IN THE SOUTH

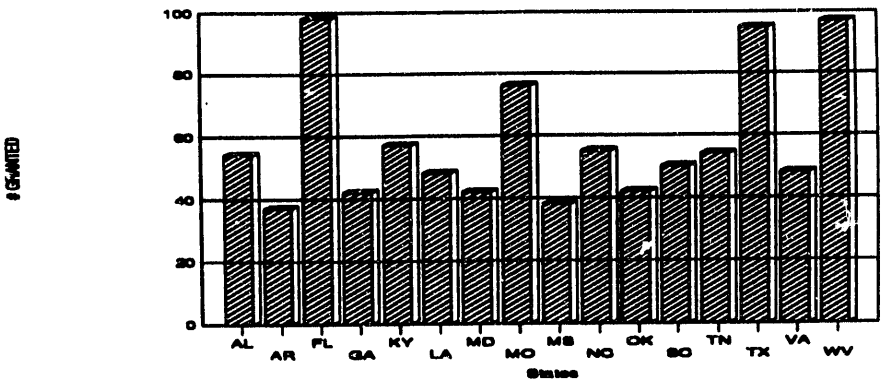
The ICC is responsible for maintaining a database which lists and describes the status of individual rail abandonment cases. The ICC rail abandonment database includes specific information that assists in analyzing individual cases. The ICC computer listings provide the following information for each application for abandonment made to the ICC.

- name of the railroad applying for line abandonments;
- railroad company's docket numbers;
- sub-docket number for the individual applications;
- affected states;
- abandonment application filing dates;
- ICC decision date;
- ICC decision;
- granted abandoned line distance; and
- approximate local location of the applied line.

Since 1960, the ICC has profiled a few thousand abandonment cases in the United States. In the South alone over 1,000 abandonment cases have been filed with the ICC. As of November 2, 1987, 899 southern cases filed with the ICC by railroads were granted abandonment. This represents approximately 85 percent of the total number applied for abandonment in the South. Of the cases decided by the ICC, 91 percent were granted abandonment and 87 cases are currently pending before the ICC in the southern region. Figure 8 illustrates the total number of rail abandonments granted in each state. Figure 9 shows the number of abandonment applications still pending decision by the ICC in each southern state.

Figure 8

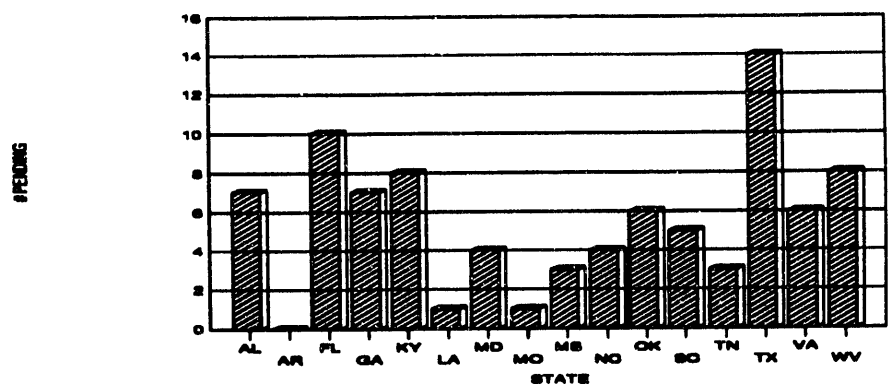
RAIL ABANDONMENT CASES GRANTED SOUTHERN STATES



Source: Interstate Commerce Commission, November 2, 1987.

Figure 9

RAIL ABANDONMENTS CASES PENDING SOUTHERN STATES

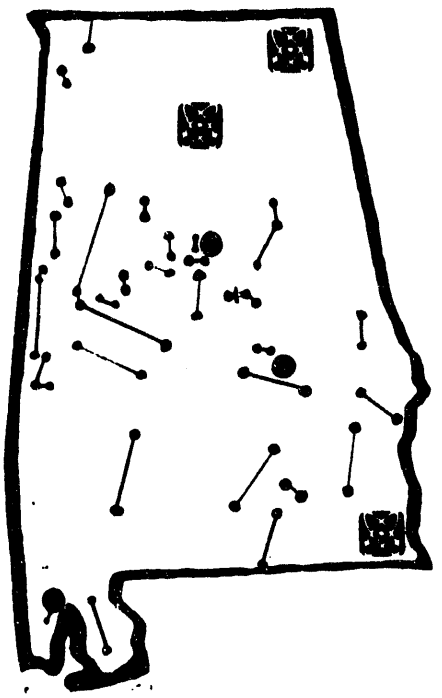


Source: Interstate Commerce Commission, November 2,1987.

Only a small number of rail abandonment cases in the South have been withdrawn, dismissed or denied. Over the available 27 year recording period, 51 abandonment applications were withdrawn by railroads, 19 cases were dismissed due to incorrect application and just 16 cases were denied outright by the ICC. Eight southern states had cases denied with 11 of the denials occurring in the late 1970s. In this decade, only two cases have been denied in the South.

The following section provides a brief description of each southern state's rail abandonments including the general location and distance of rail abandonments since 1960. It should be noted that not all abandoned rail lines are shown on the following map due to the non-availability of specific locations in the ICC database. Nuclear reactor sites and cities with populations of over 100,000 are also shown.

ALABAMA



RAIL ABANDONMENT

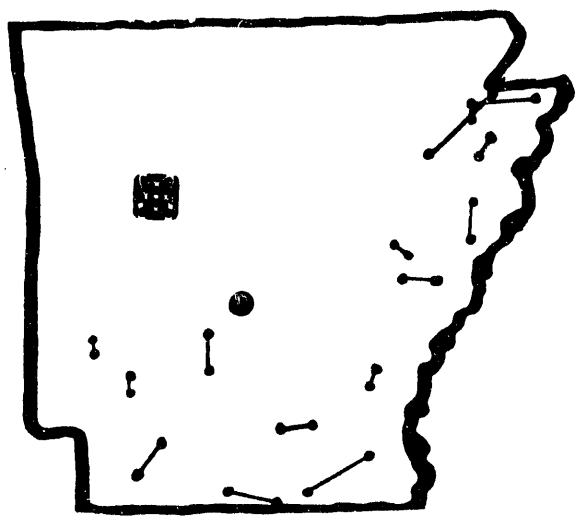
NUCLEAR REACTOR SITES

CITIES WITH POPULATION OVER 100,000

Does not include all rail abandonment locations

Alabama has had 54 rail abandonment cases granted since 1960. Currently seven cases are now pending in the state. The abandonments applied for have ranged between 0.1 and 66.6 miles. Only 11 cases filed were for lines over 20 miles in length. Some 20 railroad companies have been involved in the abandonment application process to the ICC. The majority of the applications were filed and decided in the late 1970s and early 1980s. As shown above, the largest concentration of abandonments have taken place in the western central area of the state. No rail abandonments were filed in the immediate vicinity of Alabama's three nuclear power sites. The Browns Ferry 1,2,3 reactor site in the northern part of the state will ship by truck. 13 applications for abandonments in the 1960s are not shown on the above map because their locations were not recorded by the ICC.

ARKANSAS



RAIL ABANDONMENT

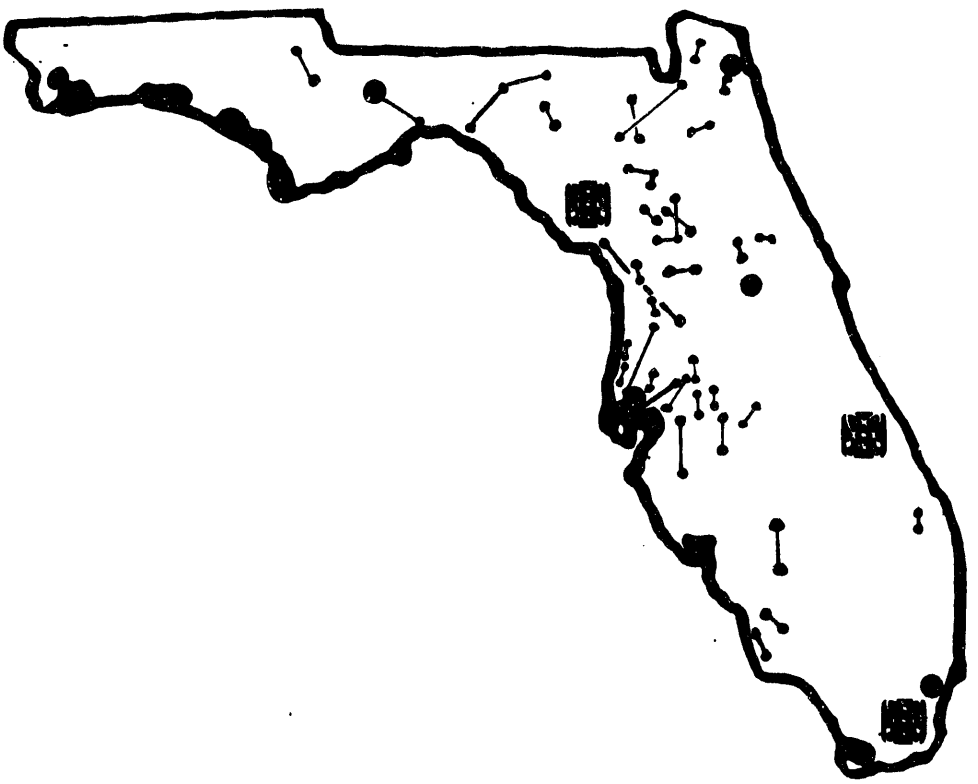
NUCLEAR REACTOR SITES

CITIES WITH POPULATION OVER 100,000

Does not include all rail abandonment locations

Since 1960, the ICC has granted 37 rail abandonment filings in Arkansas. As of November 20, 1987, no filings are pending before the ICC which affect Arkansas. The distances filed for abandonments have ranged between 1.63 and 104.5 miles. Ten applications were for lines over 20 miles in length, all were granted by the ICC. 16 railroad companies applied for abandonments in the state. The applications themselves were evenly distributed between the 1960s and 1980s. Although the map above leaves out 14 locations filed in the 1960s, the majority of the abandonments have been scattered in the southern and eastern parts of the state. No abandonment applications have been made near the state's only nuclear reactor site, Arkansas 1&2.

FLORIDA



RAIL ABANDONMENT

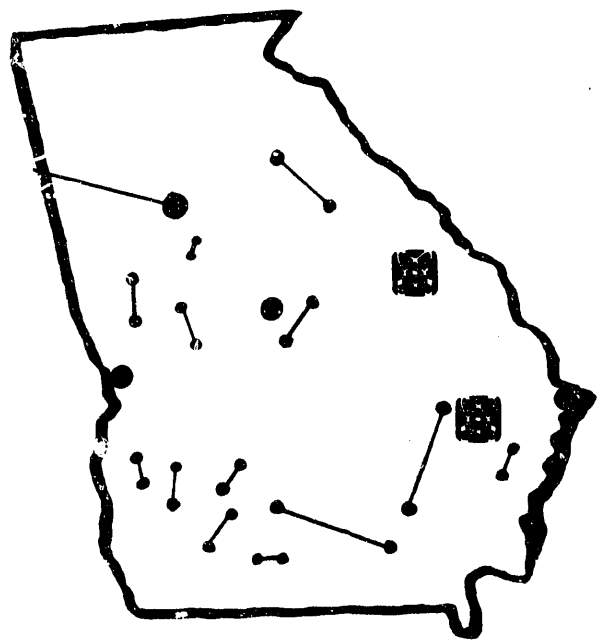
NUCLEAR REACTOR SITES

CITIES WITH POPULATION OVER 100,000

Does not include all rail abandonment locations

The ICC has approved 98 rail abandonment applications in Florida since 1960. Through the end of 1987, the state had 10 abandonment cases yet to be decided by the ICC. The abandonments filed ranged from 0.05 to 188.00 miles in length. A total of 20 filings were for lengths over 20 miles and all have been granted. Applying for abandonments in the state were 16 railroads. Many of the filings were made in the late 1970s through the 1980s. The map above does not include 13 locations filed in the 1960s. The concentration of abandonments were in areas east and north of Tampa. None of the state's reactors are rail compatible and would not be affected except if intermodal transfers were conducted.

GEORGIA



RAIL ABANDONMENT

NUCLEAR REACTOR SITES

CITIES WITH POPULATION OVER 100,000

Does not include all rail abandonment locations

Between 1960 and 1987, the ICC granted 42 rail abandonment cases in Georgia. As of November 1987, there are seven abandonment applications in the state still pending a decision by the ICC. One short abandonment application in Bacon county was denied by the ICC on September 14, 1983. Approximately 23 large and small railroads have filed for abandonments ranging in distance from 0.19 to 152.24 miles. The ICC abandonment applications included 15 lines over 20 miles in distance. The rail abandonments have been disturbed mainly in central and southern portions of the state. Locations for 15 abandonments during the 1960s were not listed in the ICC database. A few rail abandonments have taken place in the vicinity of the rail-accessible Hatch 1&2 reactor site.

KENTUCKY

RAIL ABANDONMENT

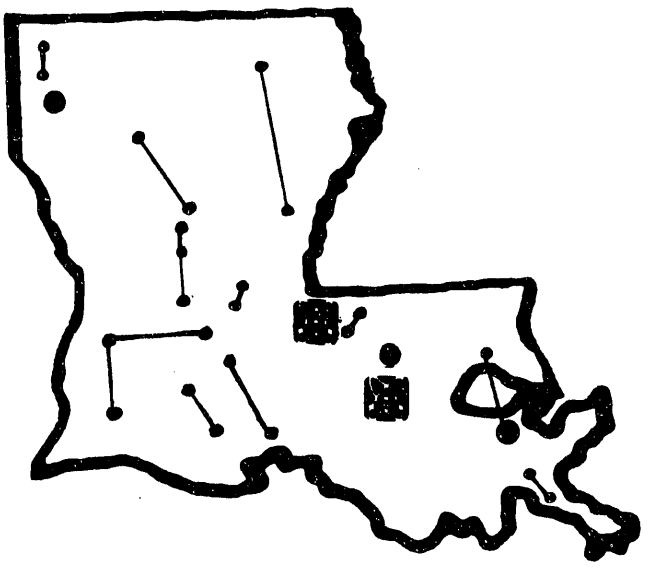
NUCLEAR REACTOR SITES

CITIES WITH POPULATION OVER 100,000

Does not include all rail abandonment locations

The ICC has granted 57 rail abandonments in Kentucky since 1960. Eight abandonments applications were still pending as of November 1987 and only a 1977 case was denied by the ICC. The abandonments have ranged in distance between 0.05 and 102.65 miles. Only 11 cases have been granted by the ICC which are over 20 miles in length. Some 14 railroad companies applied for abandonments in Kentucky. Most of the abandonments filings were made in the early to mid 1980s. While the map above does not include seven locations filed for abandonment in the 1960s, it does indicate a concentration of abandonments mainly along the Ohio River and western portion of the state. No commercial nuclear reactors exist in Kentucky nor are any located near its borders.

LOUISIANA



RAIL ABANDONMENT

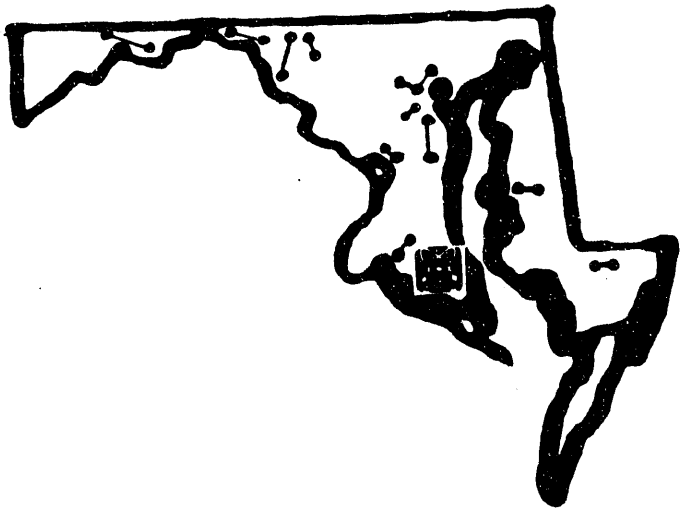
NUCLEAR REACTOR SITES

CITIES WITH POPULATION OVER 100,000

Does not include all rail abandonment locations

Between 1960 and November 1987, the ICC granted 48 rail abandonment cases in Louisiana with only one case still pending. The rail abandonment distances themselves have ranged between 0.80 and 81.93 miles. Some 17 granted cases involved abandonments over 20 miles. While 16 railroads applied for abandonments in Louisiana, three large railroads accounted for the most filings. The filings themselves have been made relatively evenly between 1960 and 1987. Numerous granted abandonments have been made in the central portions of the state including some near the rail-capable River Bend 1 nuclear site.

MARYLAND



RAIL ABANDONMENT

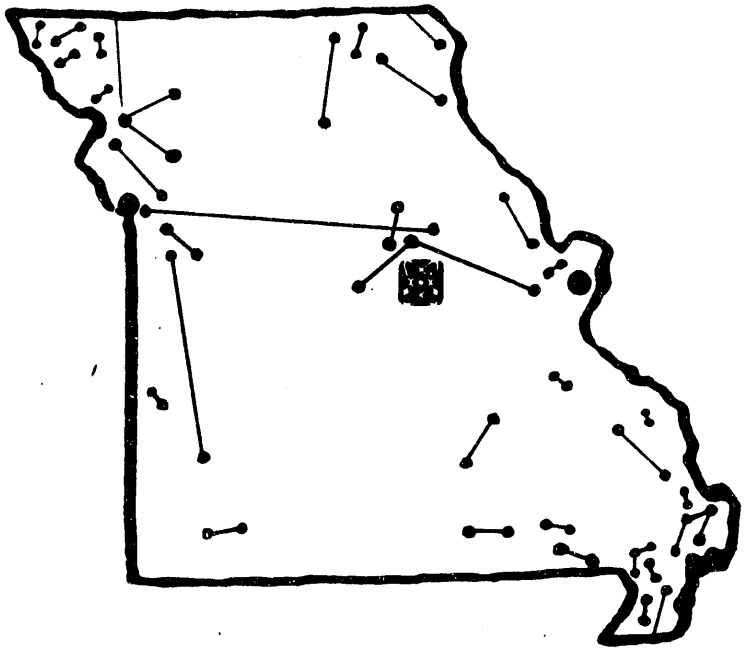
NUCLEAR REACTOR SITES

CITIES WITH POPULATION OVER 100,000

Does not include all rail abandonment locations

The ICC has granted 42 rail abandonment cases in Maryland between 1960 and 1987. Four cases are currently pending before the ICC. The distances of the abandonments have been between 0.03 and 21.00 miles in length. Only one case has been over 21.00 miles and seven over ten miles. Some 14 rail carriers have applied for abandonments in Maryland. Most abandonment applications were made in the early 1970s and early to mid 1980s by both large and small railroads. Seven abandonment locations granted in the 1960s were not listed in the ICC database. The abandonments have been distributed around the state. While the Calvert Cliffs 1&2 reactor site is near some abandonments, it is expected to ship by truck.

MISSOURI



RAIL ABANDONMENT

NUCLEAR REACTOR SITES

CITIES WITH POPULATION OVER 100,000

Does not include all rail abandonment locations

The ICC has approved 76 rail abandonments filings in Missouri between 1960 and 1987 with only one case currently pending. The abandonments have ranged in distance between 0.01 and 222.30 miles. 27 granted abandonments were over 20 miles in length including five over 100 miles in length. While 17 railroads applied for abandonments, the Burlington Northern Railroad Company was by far the largest single filer. The applications were made evenly over the time between 1960 and 1987. Missouri did have two abandonment cases in 1967 and 1972 denied by the ICC. The abandonment cases have primarily been concentrated in the northwestern and southeastern corners of the state. Several abandonments have been granted in the vicinity of the Callaway 1 nuclear site even though it is expected to ship spent fuel by truck.

MISSISSIPPI

RAIL ABANDONMENT

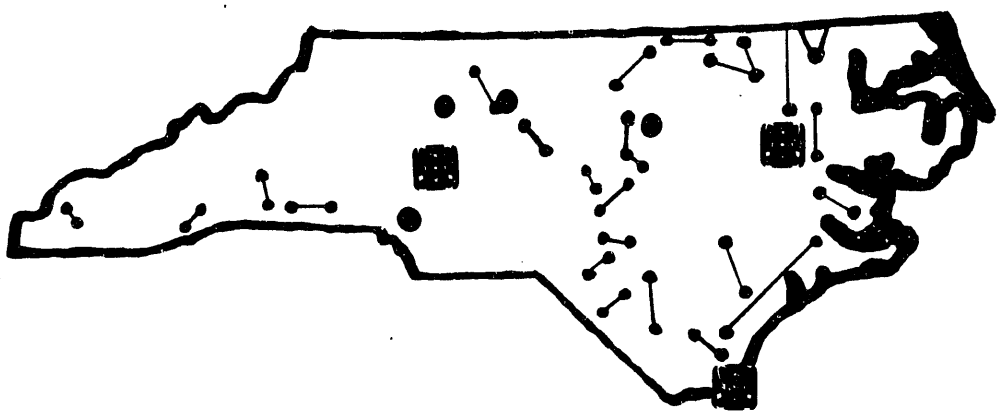
NUCLEAR REACTOR SITES

CITIES WITH POPULATION OVER 100,000

Does not include all rail abandonment locations

The ICC has granted in Mississippi 38 rail abandonment cases between 1960 and November 20, 1987. Currently, three filings are still pending before the ICC. The distances of the rail abandonments in the state have been between 1.13 and 87.34 miles. 23 granted rail abandonments have been over 20 miles in length and few have been under 10 miles. While five railroads have filed for abandonments in the state, the Illinois Central Gulf railroad company accounts for nearly all abandonment applications. Except for two filings in the 1960s, all abandonment applications began after July 1973 in the state. Most of the abandonments have occurred in the central and especially western side of the state. Numerous abandonments have taken place near the truck shipping Grand Gulf 1 nuclear plant.

NORTH CAROLINA



RAIL ABANDONMENT

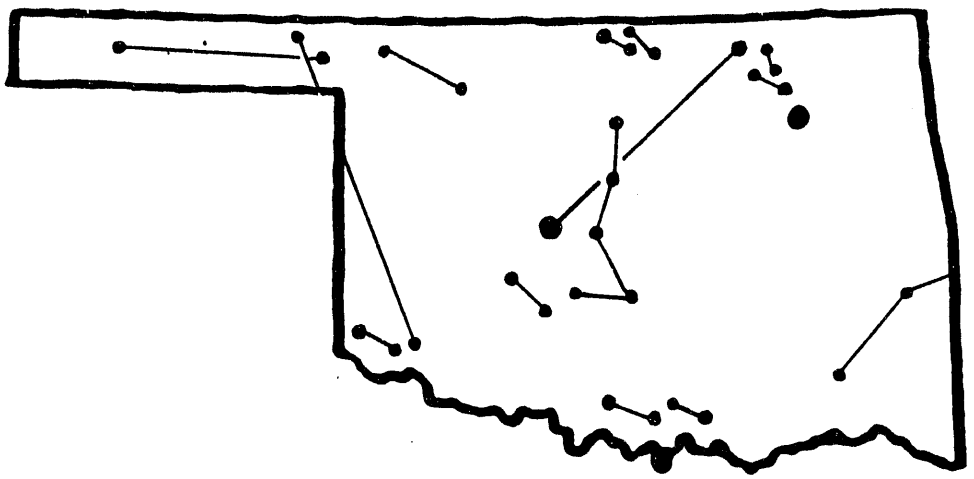
NUCLEAR REACTOR SITES

CITIES WITH POPULATION OVER 100,000

Does not include all rail abandonment locations

In North Carolina since 1960, 55 rail abandonment applications have been granted by the ICC. In addition, four other cases are pending a decision by the ICC. The distance of the abandonments in the state have ranged between 0.03 and 154.72 miles in length. 18 granted abandonment cases have involved lines over 20 miles in length. Some 21 railroads applied for abandonments in the state. Many of the abandonment filings took place in the late 1970s through the mid 1980s and one 1976 case was denied by the ICC. The abandonments have taken place mainly in the eastern half of the state. The ICC database does not include the location of eight cases during the 1960s. Several abandonments have taken place in the vicinity of the rail-compatible Brunswick 1&2 and Harris 1 nuclear sites.

OKLAHOMA



RAIL ABANDONMENT

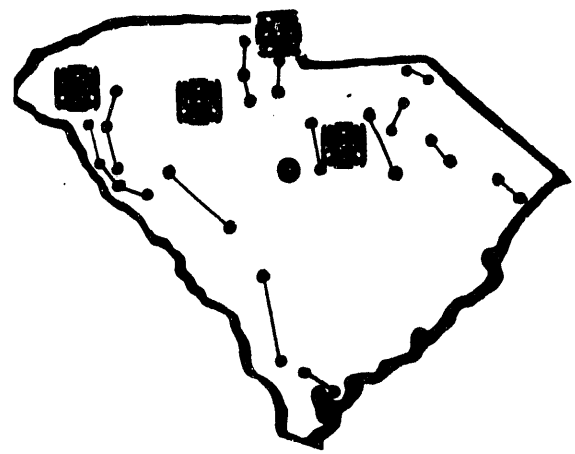
NUCLEAR REACTOR SITES

CITIES WITH POPULATION OVER 100,000

Does not include all rail abandonment locations

Between 1960 and 1987, Oklahoma has experienced 42 ICC granted rail abandonment cases. Six cases are also still pending a decision by the ICC. The abandonment distances in the state have been between 0.80 and 225.34 miles. The number of granted abandonment lines over 20 miles in length total 22 as well as five lines over 100 miles. Applications for abandonment were made by 16 railroads. The state had many filings occur in the 1960s, late 1970s and early 1980s. 15 cases in the 1960s had no locations in the ICC database. Except for the eastern portion of the state, rail abandonments were relatively evenly distributed geographically. Oklahoma has no commercial reactors and none near its borders.

SOUTH CAROLINA



●——● **RAIL ABANDONMENT**

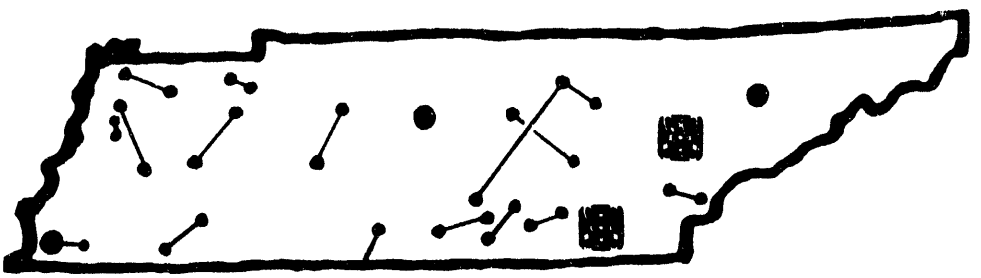
NUCLEAR REACTOR SITES

● **CITIES WITH POPULATION OVER 100,000**

Does not include all rail abandonment locations

South Carolina has had 50 rail abandonment applications granted by the ICC between 1960 and 1987 with five more still pending before the ICC. The distances of the abandonments have been between 0.33 and 59.24 miles in length. A total of 13 lines were abandoned over 20 miles long. Some 18 railroad companies applied for line abandonments in the state. Most of the abandonment applications have been distributed evenly over time with only one case in 1976 being denied. Many of the abandonments have taken place along the northern and western edges of the state including several near the state's commercial nuclear reactor sites and the Savannah River Plant. Only the Oconee 1,2,3 reactor facility is anticipated to ship spent fuel by truck.

TENNESSEE



RAIL ABANDONMENT

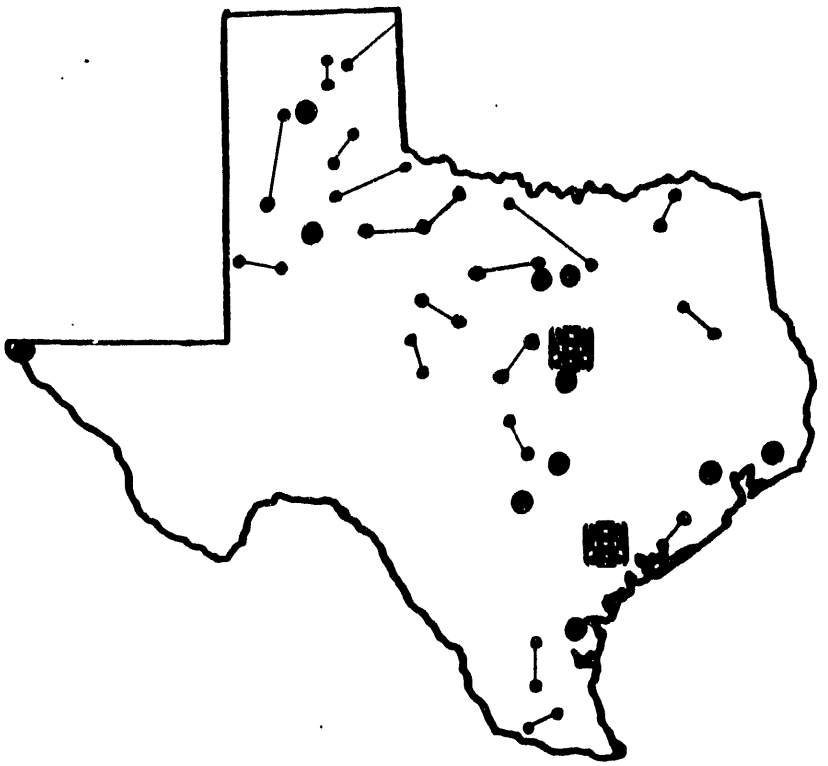
NUCLEAR REACTOR SITES

CITIES WITH POPULATION OVER 100,000

Does not include all rail abandonment locations

In Tennessee, 54 rail abandonment cases have been grated by the ICC between 1960 and 1987. Three cases are also currently pending before the ICC. The rail abandonments have ranged in distance between 0.15 and 287.00 miles. 18 granted abandoned lines were over 20 miles in length. A total of 21 large and small railroads applied to the ICC for abandonments. Many of the filings took place in the 1960s and early 1980s. Two cases in 1979 were denied by the ICC. The central and western areas of the state are where the abandonments have concentrated. Nine abandonments in the 1960s have no locations in the ICC database. Only the Sequoyah 1&2 commercial reactor site had any abandonments take place near it.

TEXAS



RAIL ABANDONMENT

NUCLEAR REACTOR SITES

CITIES WITH POPULATION OVER 100,000

Does not include all rail abandonment locations

The state of Texas has had 95 rail abandonment cases granted by the ICC between 1960 and November 2, 1987. Currently, there remain 14 additional cases still pending before the ICC. The distance of the abandonments has ranged between 0.56 and 220.28 miles in length. A total of 43 granted abandonments have been greater than 20 miles long and five have been over 100 miles. Some 29 large and small railroads have filed for abandonments in the state with the ICC. A great number of the abandonments took place in the 1960s. Five cases were also denied by the ICC. Most of the abandonments are located in the northern part over the state. However, the ICC database does not include the location of 50 abandonments in the 1960s. Both rail capable commercial reactors in the state, Comanche Peak 1 & 2 and South Texas 1 & 2, are located near some rail abandonments.

VIRGINIA

RAIL ABANDONMENT

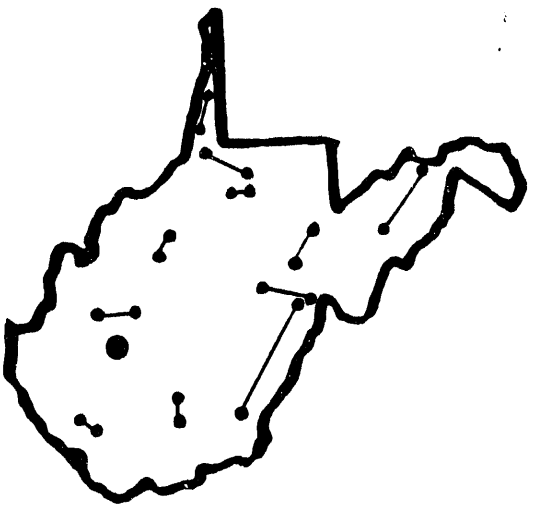
NUCLEAR REACTOR SITES

CITIES WITH POPULATION OVER 100,000

Does not include all rail abandonment locations

Virginia has had 48 rail abandonments granted by the ICC in its state since 1960. Six abandonments applications are still awaiting a decision by the ICC. The abandonments have ranged in distance between 0.35 and 79.80 miles in length. Nine cases were granted with lengths over 20 miles. A total of 21 large and small railroads filed for abandonments in the state. The abandonment filings have generally been applied for evenly over time. Abandonments have concentrated in Norfolk, central and western areas of the state. While both the Surry 1&2 and North Anna 1&2 nuclear power sites are near some abandonments, only the North Anna site is expected to ship spent fuel by rail.

WEST VIRGINIA



RAIL ABANDONMENT

NUCLEAR REACTOR SITES

CITIES WITH POPULATION OVER 100,000

Does not include all rail abandonment locations

Between 1960 and 1987, West Virginia has had 97 rail abandonment cases granted by the ICC within its borders. The state also currently has eight cases still pending before the ICC. The distance of the abandonments have ranged between 0.17 and 92.04 miles in length. A total of 11 abandonments have involved lines greater than 20 miles long. While 15 railroads have applied for abandonments in the state, four major railroads account for nearly all of the abandonment filings. A large number of abandonments were filed with the ICC in the early 1970s and mid 1980s. Two cases in 1975 and one in 1986 were denied by the ICC. The abandonments have also been distributed somewhat evenly around the state. While the state has no nuclear reactors located in it, the Beaver Valley 1&2 reactor site in Pennsylvania is located just to the north of West Virginia.

8.0 SUMMARY AND CONCLUSION

The railroad industry will have a very critical role in the eventual shipping of commercial spent fuel and defense high-level waste as provided under the Nuclear Waste Policy Act of 1982 and the 1987 amendments. The transport of spent fuel is expected to be accomplished by rail from 19 of the South's 27 reactor sites to the proposed Yucca Mountain repository or possible monitored retrievable storage facility. The decline in total track availability, however, could significantly impact the federal government's transportation program. Particularly the situation of continuing abandonments may limit rail opportunities at numerous reactor locations.

Commercial nuclear reactor sites have the unfortunate problem of not being located on Class I railroad mainline tracks. The reactor sites are generally located in areas with limited rail traffic and thus vulnerable to rail abandonment procedures. The general deregulation of the railroad industry under the Staggers Act of 1980 also assisted in making rail abandonment, through the Interstate Commerce Commission, a rather simple and quick process. The effects of deregulation, however, have provided alternatives to abandonment. In particular, the Staggers Act has led to an enormous surge in the growth of short line and regional railroads. Such railroads have been able to effectively operate rail lines which Class I railroads found unprofitable. The short lines and regionals were also encouraged to competitively negotiate contracts directly with shippers. While these railroads may help reduce the number of abandonment applications, they may also represent higher shipping costs.

The South has experienced a great number of abandonments since the 1960s. Many of the abandonments have been significant in length and have affected areas near nuclear plants expected to ship by rail. Understanding the rail abandonment process and recognizing the potential increased costs if rail lines are abandoned, is an important concern for all shippers, including nuclear facilities. The use of rail transportation of nuclear wastes must consider the status of rail abandonments if it is to continue to be a valuable transportation mode.

9.0 REFERENCES

[1]William Lattin, U.S. DOE - Idaho, Western Interstate Energy Board High-level Waste Committee Meeting, February 11, 1988.

[2]Environmental Assessment: Deaf Smith County, Texas, (DOE/RW-0069), 1986, p. A-63-68.

[3]ibid, p. A-54,58.

[4]letter, D.S. Joy, Oak Ridge National Laboratories, February 3, 1986.

[5]ibid.

[6]Harvey A. Levine, Craig F. Rockey. "Face Lift of U.S. Rail System is Far More Than Mere Cosmetic," Traffic World, February 15, 1988, p.15.

[7]Railroad Facts 1986, Association of American Railroads, September 1986, p.2.

[8]ibid., p.42.

[9]ibid., p.52.

[10]Heather J. Gradison, Chairman, Interstate Commerce Commission, testimony before U.S. House of Representatives, Committee on Energy and Commerce, Subcommittee on Transportation, Tourism and Hazardous Materials, October 1, 1987, p.1.

[11]ibid., p.3.

[12]ibid., p.1.

[13]ibid., p.3.

[14]ibid., p.6.

[15]ibid., p.9.

[16]The 1980 Staggers Rail Act in Review, National Governors' Association, Committee on Transportation, Commerce and Communications, August 1985, p.3.

[17]A Guide for Public Participation in Rail Abandonment Cases Under the Interstate Commerce Act, U.S. Interstate Commerce Commission, Office of Public Assistance, December 1986, p.1.

[18]Southern Pacific Transportation Company - Abandonment - In Gila, Graham and Cochise Counties, AZ, ICC Docket No. AB-12 (Sub - No. 104), September 11, 1986. The ICC refused to grant abandonment despite over $365,00 of opportunity cost losses where the railroad had $150,000 profit and one shipper would suffer $3.5 million in additional costs from loss of the rail service.

10.0 BIBLIOGRAPHY

Allen, G. C., Jr. Effect of Truck and Rail Economic Deregulation on Radioactive Material Transportation. SAND 82 - 2958, Sandia National Laboratories, January 1984.

Atlas of Routes for NWPA Commercial Spent Fuel Shipments in he South. Southern States Energy Board. July 1987.

Environmental Assessment: Deaf Smith County, Texas. DOE/RW-0069, U.S. Department of Energy, 1986.

Fitzwater, Alan M. testimony before the U.S. House of Representatives, Committee on Energy and Commerce, Subcommittee on Transportation, Tourism and Hazardous Materials, October 1, 1987.

Gradison, Heather J. testimony before the U.S. House of Representatives, Committee on Energy and Commerce, Subcommittee on Transportation, Tourism and Hazardous Materials, October 1, 1987.

A Guide for Public Participation in Rail Abandonment Cases Under the Interstate Commerce Act. Office of Public Assistance, U. S. Interstate Commerce Commission, December 1986.

Lamboley, Paul H. testimony before the U.S. House of Representatives, Committee on Energy and Commerce, Subcommittee on Transportation, Tourism and Hazardous Materials, October 1, 1987.

Levive, H. A.; Rockey, C. F. "Face-lift of U. S. Rail System is far more than merely Cosmetic," Traffic World. February 15, 1988, p. 15-17.

The 1980 Staggers Rail Act in Review: White Paper. National Governors Association, August 1985.

Railroad Facts 1986. Association of American Railroads. September 1986.

Riley, John H. testimony before the U.S. House of Representatives, Committee on Energy and Commerce, Subcommittee on Transportation, Tourism and Hazardous Materials, October 1, 1987.

So You Want to Start a Small Railroad. U. S. Interstate Commerce Commission, August 1987.

Spent Nuclear Fuel and High-Level Radioactive Waste Transportation Primer. Southern States Energy Board, July 1987.

Wooden, Donald G. Railroad Transportation of Spent Fuel. SAND 86 - 7083, Sandia National Laboratories, March 1986.

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