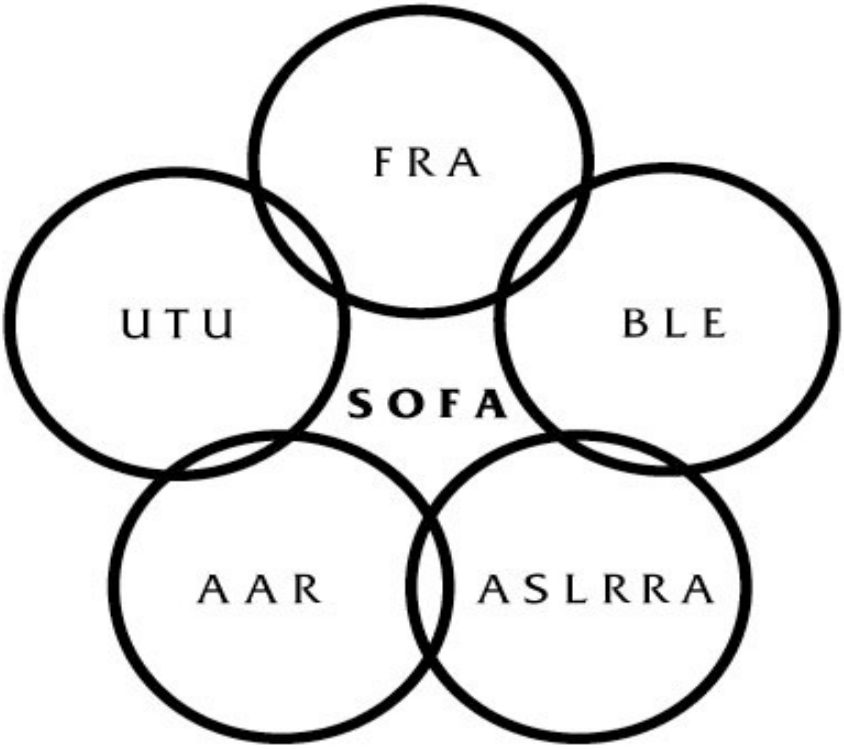
Switching Operations Fatality Analysis



Severe Injuries
to
Train and Engine Service Employees:

Data Description and Injury Characteristics

July 2001

SOFA WORKING GROUP
May , 200 1

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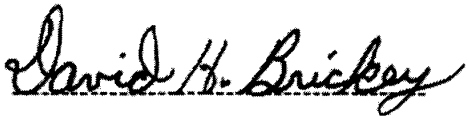

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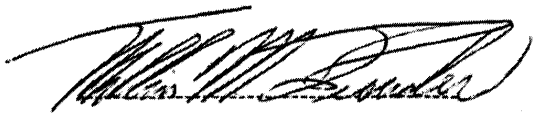

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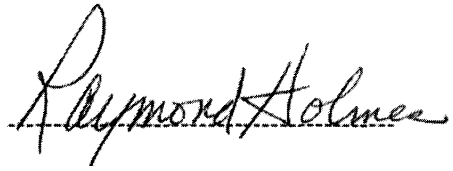

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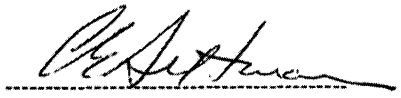

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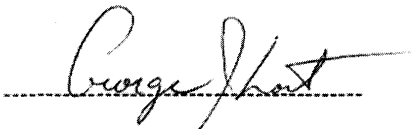

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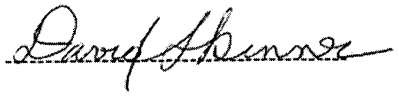

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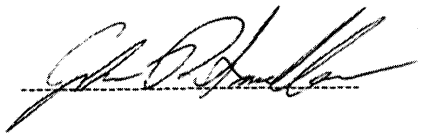

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executive summary

- This report describes one of the safety activities the SOFA (Switching Operations Fatality Analysis) Working Group has been involved in since issuing the final report, *Findings and Recommendations of the SOFA Working Group* of October 1999. That report, based on an extensive investigation into 76 employee fatalities (FEs) occurring during the period January 1, 1992 to July 1, 1998, made five safety recommendations to reduce the number of FEs occurring among employees engaged in railroad switching operations. THE FIVE LIFESAVERS were developed from these SOFA recommendations.

- The Working Group also recommended in the final report that (1) training programs be directed toward protecting employees against unexpected train movement; (2) Crew Resource Management (CRM) be undertaken to enhance intra-crew communication; and (3) Severe Injuries be studied, the thought being that Severe Injuries may have a similar possible-contributing-factors basis as FEs. This report examines the data available for Severe Injuries.

- In its final report, The Working Group made recommendations to the Federal Railroad Administration (FRA) to modify FE data collection procedures, and to continue to review and monitor that data by (1) establishing and maintaining objective FE data; (2) providing computer support to the data collection process; and (3) modifying the FRA's data collection process to include a team concept.

- With the knowledge gained of possible contributing factors of FEs, the SOFA Working Group extended its investigation to approximately 135 Severe Injuries that occur each year to train and engine service employees. In doing so, the Working Group was particularly interested in three issues:

    1. types of information available about these Severe Injury events, recognizing that these events are not investigated or reported like FEs;

    2. extent to which the available information will allow the determination of whether these injuries have similar contributing factors as FEs, or whether different processes are involved; and

    3. potential for making recommendations in operating procedures that may prevent these Severe Injuries.

    - "Severe Injuries" were defined by the Working Group as FRA-reportable injuries to train and engine service employees that have a clear and verifiable diagnosis and meet one or more of the following four criteria: (1) potentially life threatening; (2) high likelihood of permanent loss of function, permanent occupational limitation, or other permanent disability; (3) likely to result in significant work restrictions; and (4) result from a high energy impact to the human body.

- Severe Injuries have remained fairly constant in number over recent years, being respectively 139, 137, 135, and 134 from 1997 to 2000.

- In examining the injury data, the SOFA Working Group could not link any of its five safety recommendations to Severe Injury events. Data available on Severe Injuries is not as detailed as that collected on FEs. Hence, this report is concerned with the types of information currently available about Severe Injuries.

- The SOFA Working Group makes this information available in the interest of railroad safety.

1. INTRODUCTION

1.1 ORIGINS OF THE SOFA WORKING GROUP

In February 1998, a Switching Operations Fatalities Analysis (SOFA) Working Group, with representatives from the Federal Railroad Administration (FRA), labor, and management was formed at the request of the FRA to review recent employee fatalities and to develop recommendations for reducing fatalities in switching operations.

The charge to the Working Group was contained in a letter from George A. Gavalla, Associate Administrator for Safety, of the FRA, to the following four organizations: Association of American Railroads (AAR), American Short Line and Regional Railroad Association (ASLRRA), Brotherhood of Locomotive Engineers (BLE), and the United Transportation Union (UTU). It proposed that the group, "Conduct a detailed fact-finding review and analysis of these incidents to determine whether trends or patterns can be found, identify best practices, and, if possible, formulate recommendations for the entire industry based on its findings."

The SOFA Working Group's study of fatality events to train and engine service employees, as described below, led to the investigation of Severe Injuries.

1.2 SOFA GROUP ACTIVITIES AND REASON FOR INVESTIGATING SEVERE INJURIES

Upon completing the SOFA Report, *Findings and Recommendations of the SOFA Working Group*, of October 1999, the SOFA Working Group became actively involved in implementing the five safety recommendations contained in that report. These recommendations hold much promise to reduce the 11-on-average employee fatalities (FEs) that occur each year among railroad employees engaged in switching operations.

The Working Group also recommended in the final report that (1) training programs be directed toward protecting employees against unexpected train movement; (2) Crew Resource Management (CRM) be undertaken to enhance intra-crew communication; and (3) Severe Injuries be studied, the thought being that Severe Injuries may have a similar possible-contributing-factors basis as FEs.[1] This latter consideration forms the basis for this report.

Since the issuance of its final report, the SOFA Working Group continues to examine the circumstances of any new FEs. These new FEs are coded into the SOFA Matrix along with the 76 FEs occurring during the period January 1, 1992 to July 1, 1998, upon which the five safety recommendations were based. At the time of publication of this report, the SOFA Matrix contained 91 FEs with at least 10 more FEs to be coded and entered. This SOFA Working Group activity, of keeping the SOFA Matrix current, allows further analysis of FE-causing events —

[1] In its final report, The Working Group made recommendations to the FRA to modify FE data collection procedures, and to continue to review and monitor that data by (1) establishing and maintaining objective FE data; (2) providing computer support to the data collection process; and (3) modifying the FRA's data collection process to include a team concept.

particularly rare events — as well as an evaluation of the effects of the five safety recommendations.

Once they documented the factual basis of each FE, the SOFA Working Group members used their years of diverse, railroad-switching experience to identify the possible contributing factors (PCFs) of each FE. The Working Group then classified FEs having similar PCFs to provide the evidence for each of the five major findings and recommendations. Statistical analysis was not appropriate because of the small number of FEs and the multitude of different circumstances surrounding the FEs.

As was urged in its final report, the SOFA Working Group has undertaken the activity of trying to understand the approximately 135 Severe Injuries that occur each year to railroad employees engaged in switching operations. These injuries have been named Severe Injuries. Essentially, these injuries are comprised of any body-part amputations; bone fractures, except those below the elbow or ankle; burns and shocks to the neck and face; neck dislocations; and loss of an eye(s). Severe Injuries are further defined and discussed in the subsequent section of this report. In trying to understand the approximately 135 Severe Injury events that presently occur yearly to train and engine service employees, the SOFA Working Group is, once again, using its years of railroad-switching experience in trying to interpret the available Severe Injury data.

1.3 STUDYING SEVERE INJURIES

The purpose of examining Severe Injuries is the same as studying FEs: to understand the sequence of operational actions and background conditions leading up to a traumatic event; and to make — if the evidence warrants — recommendations in operating procedures and practices which would prevent future such occurrences.

In examining Severe Injuries, the Working Group is particularly interested in three issues:

1. types of information available about these Severe Injury events, recognizing that injuries are not investigated or reported like FEs;

2. extent to which the available information will allow the determination of whether these injuries have similar contributing factors as FEs, or whether different processes are involved; and

3. potential for making recommendations in operating procedures that may prevent these Severe Injuries.

The SOFA Working Group used their experience gained during the examination of each FE in developing the SOFA final report, as well as factors found common to many of the 76 FEs, in trying to interpret the injury data. The SOFA Working Group determined that data collected on Severe Injuries was much less comprehensive than that collected during FE investigations. Hence, it is not possible to construct a “Severe Injury Matrix” similar to the SOFA Matrix for FEs that can contain as many as 200 pieces of qualitative and quantitative information per fatality. Therefore, the discovery of the factual basis of preceding actions on the part of the

injured employee and related crewmembers, as well as the background conditions, cannot be fully known from the information railroads submit on FORM FRA F 6180.55a. The injury data does not provide the information that the FE data does on each trauma event. Consequently, the SOFA Working Group found that the significant level of supporting evidence for the major findings and recommendations in the SOFA final report cannot be achieved with the available injury data.

It should be emphasized that the SOFA Working Group evaluations of the injury data includes their *knowledge developed from detailed examination of FEs*. Other groups, with different needs and experiences, may have different perspectives of the relevancy of the injury data to their mission.

2. DESCRIPTION OF SEVERE INJURIES AND DATA

2.1 SEVERE INJURIES

"Severe Injuries" were defined by the Working Group as FRA-reportable injuries to train and engine service employees that have a clear and verifiable diagnosis and met one or more of the following four criteria: (1) potentially life threatening; (2) high likelihood of permanent loss of function, permanent occupational limitation, or other permanent disability; (3) likely to result in significant work restrictions; or (4) result from a high energy impact to the human body. The nature of these injuries is shown in Table 1.

Under this classification system, the SOFA Working Group partitioned trauma into three groups: The first category is *All-Other Injuries* which are the less serious and includes lacerations, sprains, and strains often resulting from falling or over exertion. The second category is *Severe Injuries* as defined in this report by the SOFA Working Group and the third category of railroad-related trauma to employees is *Fatalities.* The vast majority of injuries to employees -- some 96 percent -- are All-Other Injuries. Table 2 shows the distribution of injuries among the three classes defined above for January 1, 1997 to March 31, 2000. (Note: The Severe Injury data in this report may be for different time periods. This difference is explained in the next section, *Severe Injury Period of Investigation.*)

The definition of "Severe Injuries" potentially includes 19 different types of severe illnesses, whose onset occurs on railroad property. These 19 potential types of illnesses are shown in Table 3. These illnesses, although not the result of a high-energy impact to the human body, may be life or career threatening. Over the 3-year period from 1997 to 1999, there were actually 18 cases of a severe illness. Most were "Heat/Sun Stroke" and "Freezing/Frostbite." The SOFA Working Group is not currently examining illnesses.

As mentioned above, the SOFA Working Group examined the train and engine service employee injury data with the experience achieved from detailed investigation and understanding of the circumstances commonly found leading up to FE events. Since Severe Injuries are not investigated and reported in depth like FEs, the discovery of actions preceding an injury, with the background and enabling conditions, cannot always be fully identified. It was this information that the SOFA Working Group found invaluable in developing the five major findings and recommendations.

The SOFA Working Group cannot conclusively identify whether one or more of the five recommendations applied to a particular Severe Injury event. Hence, this report can only be descriptive in nature concerning Severe Injuries and the injury data. Knowing that, the SOFA Working Group is now releasing this report. Others, with different needs and experiences, may examine the injury data with different valuations of its usefulness to their mission.

Table 1. Severe Injuries Types and Body Location

Type		Body Location
Fracture		Upper arm, upper leg, knee, lower leg, ankle, heel, eye, skull, neck, spine, upper back, lower back, shoulder, collar bone, rib/rib cage, hips, and multiple fractures
Amputation		Any body part
Dislocation		Neck
Loss of eye		One or both
Electric shock/burn		Eye, ear, nose, mouth/teeth, skull, and neck
Other burn		Eye, ear, nose, mouth/teeth, skull, and neck

Table 2. Relationship of Severe Injuries to Fatalities, All-Other Injuries, and Illnesses, January 1, 1997 to March 31, 2000

All Injuries, Illnesses, and Fatalities		12,241
less not-on-duty Injuries, Illnesses, and Fatalities	358	
On-Duty Injuries, Illnesses, and Fatalities		11,883
less Fatalities	61	
On-Duty Injuries and Illnesses		11,822
less Illnesses contained in All-Other Injuries	184	
less Illnesses contained in Severe Injuries	18	
	202	
All On-Duty Injuries net of Illnesses		11,620
less All-Other Injuries	11,174	
All Severe Injuries		446
less fractures (80%)	356	
less amputations (16%)	69	
less burns (4%)	20	
less dislocations (.2%)	1	
	446	0

Table 3. Potential Illnesses Contained in Severe Injuries

Dust diseases (lung)	Poisoning, lead, mercury, etc.	Freezing/frostbite
Silicosis	Poisoning, gases	Noise-induced hearing loss
Asbestosis	Poisoning, solvents	Anthrax
Coal worker's pneumoconiosis	Poisoning, insecticides	Brucellosis
Byssinosis	Poisoning, chemicals	Malignant tumors
Pneumoconiosis, other	Poisoning, miscellaneous	
Poisoning (toxic material)	Heat/sun stroke	

2.2 SEVERE INJURY PERIOD OF INVESTIGATION

The SOFA Working Group established the start date for the Severe Injury investigation as 1997. The Working Group thought this starting point would be the most productive. Prior to 1997, the injury reporting form, FORM FRA F 6180.55a, did not include the seven "circumstance" codes. These codes are among the most important pieces of information in establishing where the employee was before the injury, what the employee was doing, the injury event itself, and the nature and body location of the injury. These circumstance codes correspond to some of the most useful information used by the SOFA Working Group in their detailed examination of FEs.

The SOFA Working Group held meetings on a continuing basis at which data and information on Severe Injuries were examined. The Severe Injury data were assembled from 1997 up to a time, depending on when the injury data became available on the FRA web site, which corresponded to the SOFA Working Group's next meeting date. The investigation of the train and engine service employees Severe Injury data has been, and continues to be, an ongoing process. The first investigation was done with injury data through March 31, 2000. A subsequent effort was done with an additional 3 months of data through June 30, 2000. An analysis using the narrative contained in the injury data was done for 3 full years from 1997 to 1999. Thus, some of the exhibits presented in this report, containing Severe Injury data of different time periods, are "working papers" of the SOFA Group.

2.3 RAILROAD EMPLOYEES INCURRING SEVERE INJURIES

Severe Injuries occurring to train and engine service employees (600 series job codes) were compiled for slightly more crafts within the 600 series job code than those crafts involved during the SOFA study period from January 1, 1992 to July 1, 1998. Craft employee fatality job codes were 600, 608, 609, 612-618.[2] In addition to those codes, the Severe Injuries also include the following train and engine service job codes: 601-switchtenders, 603-outside hostlers, 606-road passenger conductors, 607-assistant road passenger conductors, 611-lead passenger brakemen

[2] 600-Transportation, Train and Engine (other), 608-Road Freight Conductors (Through Freight), 609-Road Freight Conductors (Local and Way Freight), 612-Road Freight Brakemen and Flagmen (Through Freight), 613-Road Freight Brakemen (Local and Way Freight), 614-Yard Conductors and Yard Foremen, 615-Yard Brakemen and Yard Helpers, 616-Road Passenger Engineers and Motormen, 617-Road Freight Engineers (Through Freight), 618-Road Freight Engineers (Through Freight).

and flagmen, 619-yard engineers, and 623-road freight firemen and helpers (local and way freight).

2.4 ORGANIZING THE SEVERE INJURY DATA

The Severe Injury data, as mentioned above, were taken from FRA's Office of Safety Analysis Web site.[3] The train and engine service employee injury files were contained in the FRA Casualty File (FORM FRA 6180.55a). That injury data were downloaded to an Excel[4] spreadsheet. An SAS[5] program was written to process and analyze that data contained in, and inputted from, the Excel file. The SAS program, as well as the processed and tabulated data, contained information from the FRA Guide for Preparing Accident/Incident Reports (DOT/FRA/RRS-22, January 1997) which allowed verbal definitions to be appended to the alphanumeric-coded information contained in the injury files, facilitating interpretation of information by the Working Group.

2.5 SEVERE INJURIES INFORMATION CONTAINED IN INJURY RECORD

There are 47 separate data fields from FORM FRA F 6180.55a (Appendix A) that have been entered into the FRA Casualty File beginning in 1997 and continuing to the present for each injury event required to be reported to the FRA. Three of these fields are "blank data expansion fields" as shown in Appendix B. "Year" is expressed in two different fields, one having 2-digit coding and one added later with 4-digit coding for Y2K compliance. "Month" and "day" of the injury occurrence are given in separate fields. "Time" is contained in three fields. Hence, it is more informative to discuss the types of information available in the casualty file rather than the file structure itself.

Table 4 shows the separate types of information available for a Severe Injury event. As mentioned above, among the most important variables in terms of trying to recreate the sequence of events preceding an injury are the seven circumstance codes added to the FRA reporting FORM FRA F 6180.55a starting in 1997. Many of the injury variables are important administratively to record injury events. However, only a limited amount of that information was used by the SOFA Working Group in analyzing FEs. As mentioned the Working Group is particularly interested in information that establishes the sequence of events and background conditions that would lead to a Severe Injury. Items 9 through 12 of Table 4 contain the types of information that are the most informative to the SOFA Working Group. It is with this information that the SOFA Group has focused its investigation of the circumstances surrounding Severe Injuries. With this information, the SOFA Working Group came to understand the inherent limitations of the available injury data.
Item 12 of Table 4 is worth mentioning. It represents a short narrative that can be provided in injury reporting. Not all records contain narrative. A railroad uses the narrative to "further

[3] http://safetydata.fra.dot.gov/officeofsafety

[4] Copyright MICROSOFT.

[5] Copyright 1988 by SAS Institute Inc., North Carolina.

explain unusual circumstances surrounding a worker's injury or illness using up to 250 characters. Completion of this narrative is mandatory for the reporting railroad unless the injury or illness can be adequately described using all other entries (information blocks) on the form." [6] In a subsequent part of this report, an analysis of these narratives is presented for the approximately 25 percent of Serious Injury cases that contained such narratives for the years 1997 to 1999.

Table 4. Information Types Available for Severe Injuries

Item #	Information Type	Variables
1	Record identification	-Incident number
2	Date and time	-Date of injury occurrence -Time of injury
3	Railroad	-Reporting railroad -Type railroad: ICC categories
4	Geographic location	-City, county, and state -FRA designated region
5	Reporting extent	-Whether additional FRA forms were filed
6	Work missed	-Days absent or restricted -Whether employee was suspended or transferred
7	Hazardous material exposure	-Whether injury involved exposure to hazardous material
8	Alcohol and drug testing	-Number of positive alcohol and drug tests
9	Employee	-Type person injured, i.e., "employee on duty" -Job occupation, i.e., "road conductor" -Age
10	Injury or death	-Type and location of injury -Whether death occurred
11	Circumstance codes	-Physical act worker was doing before injury -General location of worker before injury, i.e., yard, main/branch -Specific location of worker before injury, i.e., beside track -Equipment location, i.e., freight car moving, locomotive standing -Event causing injury, i.e., lost balance, slipped… -Tools, machinery, appliances, structures, surfaces (etc.), i.e., ground, ballast -Injury cause, i.e., human factors, environmental, equipment
12	Written description	-Narrative

[6] Chapter 6 – Page 19. FRA Guide for Preparing Accident/Incident Reports. January 1997. DOT/FRA/RRS-22

3. DISTRIBUTION OF SEVERE INJURIES

3.1 SEVERE INJURIES TYPES AND BODY LOCATION

As shown in Figure 1, the types of Severe Injuries of the 446 that occurred during the period from January 1, 1997 to March 31, 2000, consisted of 356 fractures (80%), 69 amputations (16%), 20 burns and electric shocks (4%), 1 dislocation (.02%), and no loss of eyes. The vast majority were fractures. As mentioned, all fractures are Severe Injuries except those to the lower arm or toes. Any amputation of a body part is a Severe Injury. An electric shock or burn to the neck or head is a Severe Injury as is a loss of one or both eyes or a dislocation of the neck.

Fractures

Looking at specific injury types, as shown in Figure 2, most fractures of the 356 that occurred were to ankle (32%), or ribs or sternum (25%). Twenty-seven lower leg (7.6%) and 25 knee (7.0%) comprise the next largest fracture grouping. All other fracture body locations are each less than 5 percent of the 356 total fractures.

Amputations

As shown in Figure 3, 40 of 69 (58%) amputations were to the leg, foot, or toes and 28 (41%) were to the arm and finger. There was one amputation of the head or face (an ear) during the period from January 1, 1997 to March 31, 2000.

Burns and Electrical Shocks

Figure 4 shows that there were 20 burns and electric shocks for the period. Five each were to the eye, skull, or scalp. There were also five burns and electrical shocks that were classified as "unidentified."

Neck Dislocation

There was one neck dislocation during the period.

Loss of an Eye

There was no loss of an eye during the period from January 1, 1997 to March 31, 2000.

3.2 NUMBER OF SEVERE INJURIES: 1997 TO 2000

In the recent full years, 1997 to 2000, Severe Injuries remained fairly constant in number, being respectively for those years 139, 137, 135, and 134 Severe Injuries, as shown in Table 5.

The Severe Injury series cannot be constructed back through time before 1997 on a consistent basis. Prior to 1997, there is no specific information on the type of fracture that will allow arm or foot extremities to be selected out. However, one component of the Severe Injuries series, amputations, can be. Amputations back to 1980 are shown in Figure 5. Figure 6 shows amputations and FEs for the time period also back to 1980. Note there is the *appearance* of an inverse relationship between amputations and FEs. Generally for any year, if FEs are relatively high, then amputations tend to be low. The reverse is also true. However, the relationship is not exact.

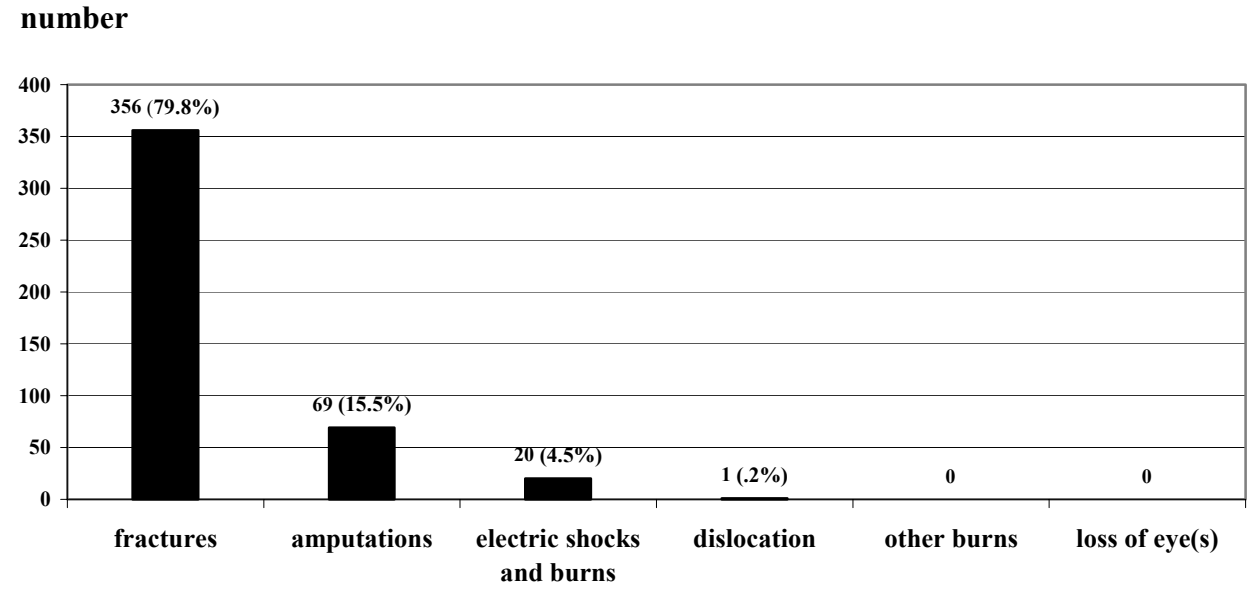

Figure 1. Composition of 446 Severe Injuries, January 1, 1997 to March 31, 2000

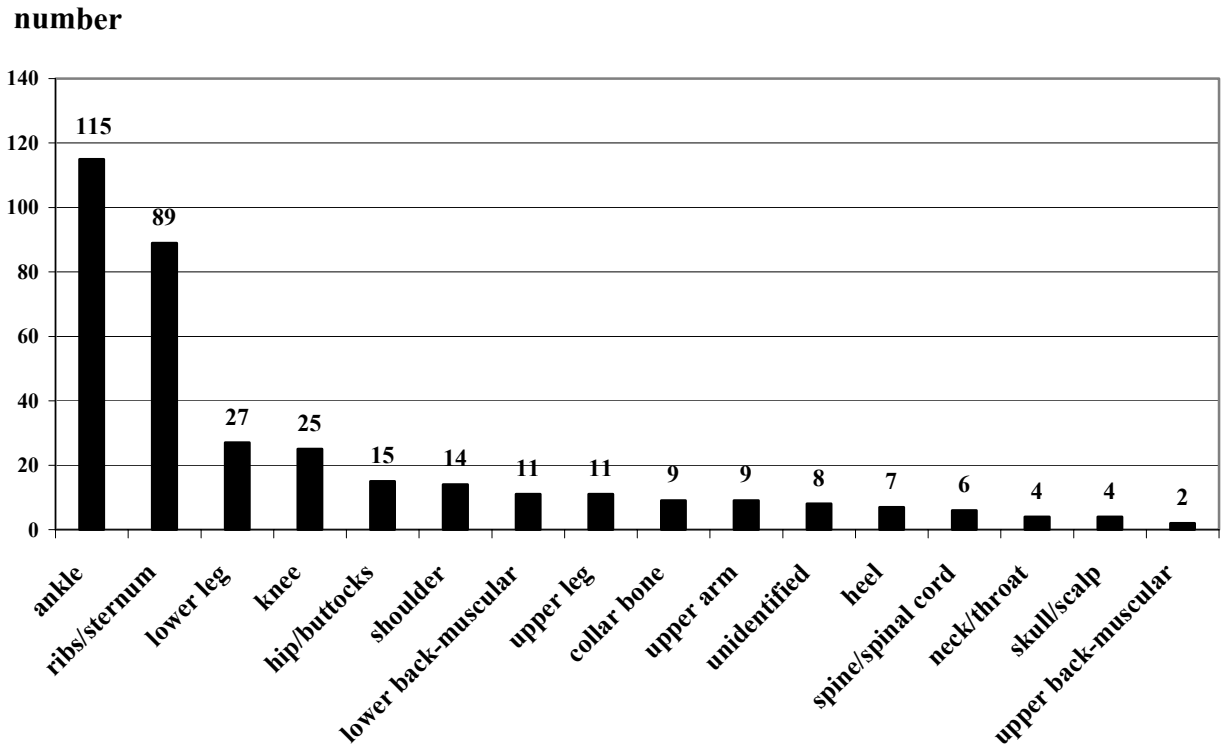

Figure 2. Types of Fractures, January 1, 1997 to March 31, 2000

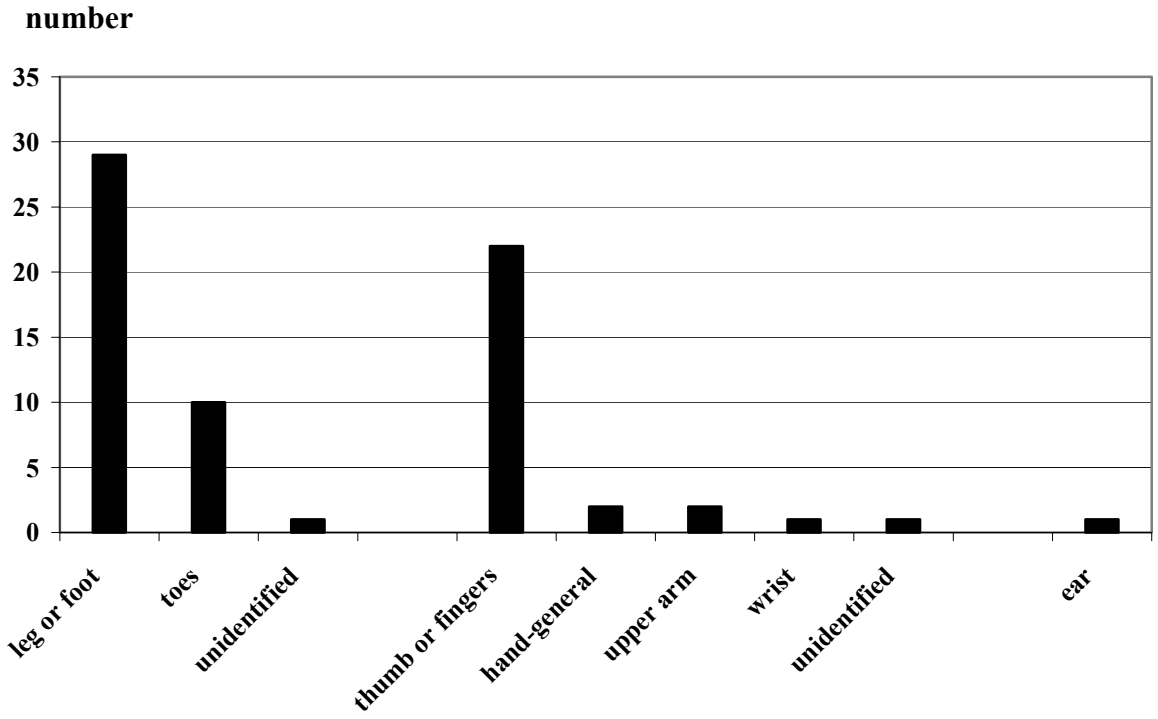

Figure 3. Types of Amputation, January 1, 1997 to March 31, 2000

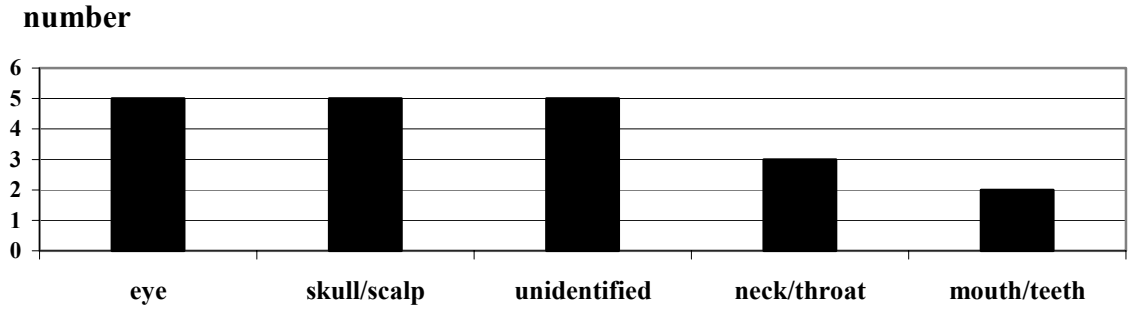

Figure 4. Types of Burns and Shocks, January 1, 1997 to March 31, 2000

Table 5. Severe Injuries by Year and Month, January 1997 to December 2000

Month	1997	1998	1999	2000	Average
January	11	13	16	15	13.8
February	17	15	9	9	12.5
March	14	12	17	11	13.5
April	8	10	6	9	8.3
May	6	12	8	8	8.5
June	9	10	8	11	9.5
July	9	14	10	8	10.3
August	13	10	11	14	12.0
September	10	11	15	10	11.5
October	12	12	16	9	12.3
November	12	9	12	9	10.5
December	18	9	7	21	13.8
TOTAL	139	137	135	134	136.3

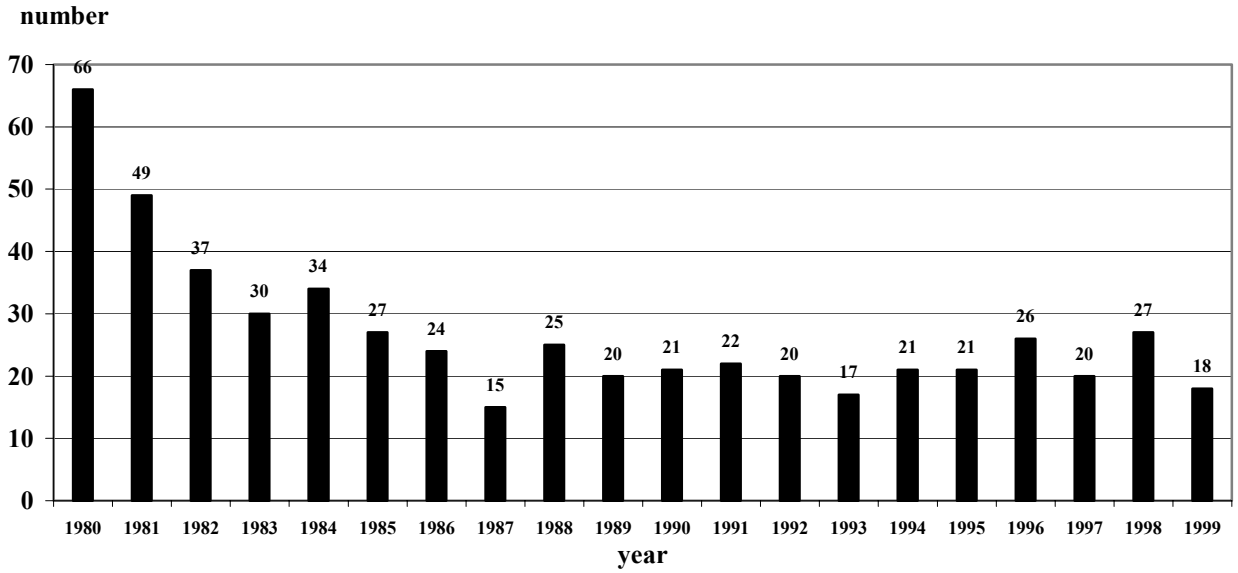

Figure 5. Amputations, 1980 to 1999

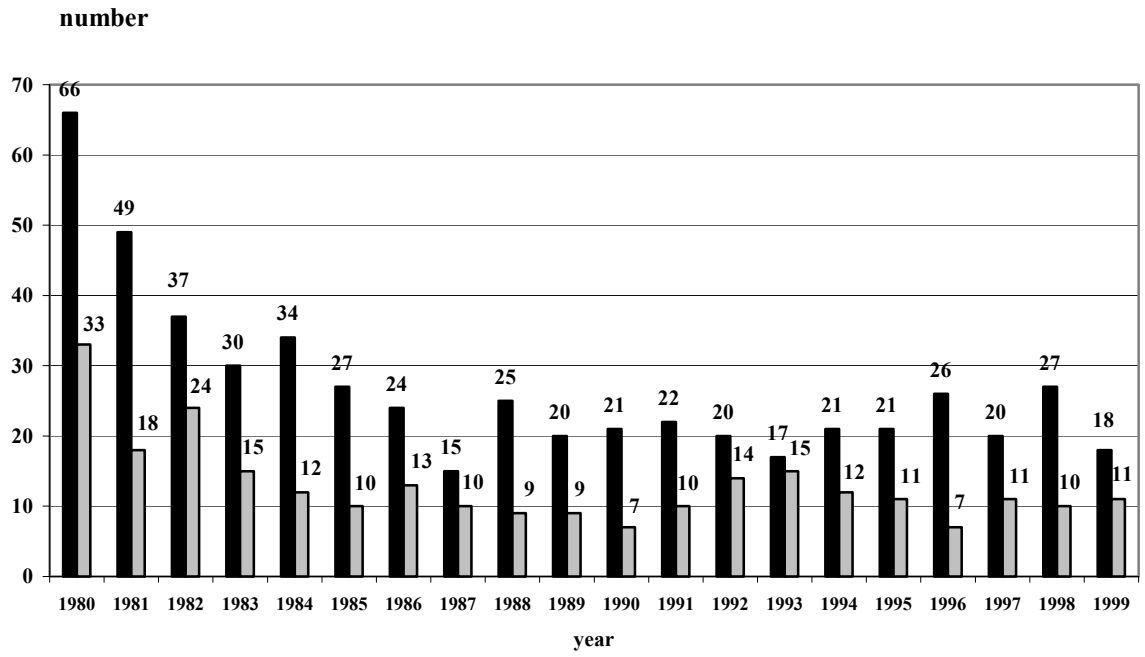

Figure 6. Amputations and FEs, 1980 to 1999

4. SUMMARY OF SEVERE INJURIES

4.1 FREQUENCY OF SEVERE INJURIES BY TRACK LOCATION

Using the Severe Injury data for the period from January 1, 1997 to March 31, 2000, the frequency of selective attribute variables were calculated based on the track location where the injury occurred. (Track location is one of the seven circumstance codes discussed in Section 2.3.) For instance, the frequency of occurrence for the job code related to the injured employee was calculated based on seven track locations: yard, mainline/branch line, industry, siding, highway/roadway, passenger terminal, and other. In addition to the remaining six circumstance codes, there are nine other attributes for which the frequency of injuries are calculated by track location: job code, injury type, body location of injury, year, month, day, time of day, age, and railroad. The calculated frequencies for the 15 variables are shown in Table 6 for 446 Severe Injuries that occurred among the 16 job codes from January 1, 1997 to March 31, 2000.

4.2 STATEMENTS ABOUT FREQUENCY OF SEVERE INJURIES BY TRACK LOCATION

To look at Severe Injuries for just yard and road crews, a slightly smaller group of track locations and job codes were used. This reduced set contained 399 Severe Injuries. Track locations were yard, mainline/branch line, industry, and siding. The following job codes were used for yard and road crews:

- *Yard crews* consist of 619-engineers, 614-conductors, and 615-brakemen.

- *Road crews* consist of 616-passenger engineer, 617-through freight engineer, 618-local freight engineer, 606-passenger conductors, 607-assist. passenger conductor, 608-through freight conductors, 609-local freight conductors, 612-freight brakemen and flagmen, and 613-freight brakemen and flagmen.

The following observations, based on the information presented in Tables 6 and 7, are an example of how the Severe Injury data might be used in trying to understand the injury process. When there is mention of yard and road crews, the information came from the restricted number of job codes and track locations given in Table 7.

- The total number of Severe Injuries has remained nearly the same during the years 1997, 1998, 1999, and the first quarter of the year 2000.

- Half the total number of Severe Injuries occurred in the yard during the years 1997, 1998, 1999, and the first quarter of the year 2000.

- Forty-six percent of all Severe Injuries to road train and engine service crews occurred in yards. Road train and engine service crews sustained more Severe Injuries in the yards than yard train and engine service crews.

- During the data period (3 years, 3 months), yard train and engine service employees sustained 35.6 percent of the total Severe Injuries, while road train and engine service employees sustained 64.4 percent of the total Severe Injuries.

- Yard engineers sustained 12.7 percent of the total number of Severe Injuries to yard crews, while road engineers sustained 24.1 percent of the total number of Severe Injuries to road crews.

- Yard train service employees sustained 87.3 percent of the total Severe Injuries to yard crews, while road train service employees sustained 75.9 percent of the total number of Severe Injuries to road crews.

- During the data period, road freight engineers incurred 3.4 times as many Severe Injuries as yard engineers.

- There were significantly more Severe Injuries in the yard during the months of January, February, and March than during the other months of the year.

- Except for a significantly less number of Severe Injuries on Saturday at industry locations, there does not appear to be any significant differences in the day of the week when these Severe Injuries occurred in the yard or on the main track/branch line.

- Significantly more Severe Injuries occurred in the first hour after midnight than during any other time of the day or night.

- At all locations, many more Severe Injuries occurred to older employees, i.e., those over 38 years of age.

- Over 90 percent of the Severe Injuries during the data period were amputations and fractures.

- Severe Injuries are six to seven times more likely to affect legs and feet than hands and arms.

- Compared with fractures, there were twice as many amputation Severe Injuries that occurred in the yard and at industries than on the main track/branch line for the same period.

- The proportion of "human factor" possible contributing factor (PCF) Severe Injuries to the total Severe Injuries is the same in the yard, on the main track/branch line, and at industries.

- Over one half of the Severe Injuries in each identified location were impacted by "the ground, ballast, or floor" as the identified "tools, machinery, appliances, structures, surfaces, etc."

- More than one third of the Severe Injuries in each identified location had a PCF of human factors.

- All the Severe Injuries "adjusting couplers" occurred in the yard.

- Five times more Severe Injuries occurred in yards, and nine time more injuries occurred on the main track/branch lines, getting off rather than getting on equipment.

- Severe Injuries resulting from the "environmental" PCF were significantly higher in the yard, compared with "environmental" PCF of Severe Injuries that occurred on "the main track/branch line" or at "industries."

4.3 CLASSIFICATION EXERCISE OF NARRATIVE FROM FORM FRA F 6180.55A

The narrative description of the FORM FRA F 6180.55a was completed in about 25 percent (109 events) of the Severe Injury cases. A reporting railroad does not *necessarily* have to fill in the narrative. This position in the form is provided because of the concern that the coded part of the form cannot provide all the information necessary for understanding the circumstances of an injury to a railroad employee. A railroad uses the narrative to "further explain unusual circumstances surrounding a worker's injury or illness using up to 250 characters. Completion of this narrative is mandatory for the reporting railroad unless the injury or illness can be adequately described using all other entries (information blocks) on the form." [7]

At one of its meetings, the SOFA Working Group undertook an analysis of those narratives. With three pieces of coded information — "type injury," "injury location," and "event" — this analysis grouped each injury into categories as best as they could be understood. In some cases, the narrative the Working Group examined was not complete. This resulted from the narrative being truncated because data processing procedures used could not capture the entire record from the FRA's web site.[8] In other cases, the record itself was not complete and/or contained typographic errors.

The classification procedure was somewhat similar to an exercise performed on the 72 SOFA FEs at the very beginning of work on analyzing FEs after the SOFA Matrix had been constructed. (Note: four additional FEs were subsequently added to complete the SOFA Matrix on which the final SOFA Report was based.) However, the injury data classification could not be as rigorous or systematic as that undertaken with the FEs.

The results of the classification are presented in Table 8. The SOFA Working Group created 14 categories for the 109 Severe Injuries. The name of 12 of these categories was suggestive of a recurring event or circumstances that may have been a PCF of the Severe Injury. Two of those 12 categories had the name of the first two of THE FIVE LIFESAVERS that were based on the five major findings and recommendations made in the SOFA Report. The narratives did not

[7] Chapter 6 – Page 19. FRA Guide for Preparing Accident/Incident Reports. January 1997. DOT/FRA/RRS-22
[8] http://safetydata.fra.dot.gov/officeofsafety

contain any information — like years of service or whether a safety briefing was held — to consider the other three LIFESAVERS. Two other categories contained injury records that were difficult to tell what transpired or where the unusual event had occurred.

After performing this analysis, due to the lack of conclusive data, the Working Group recognized that it is not possible to conclusively establish if any of the five major findings and recommendations could have been applicable to the Severe Injuries sustained by train and engine service employees. This lack of certainty even applied to the two categories based on the first two LIFESAVERS. The SOFA Working Group concluded that, even if all Severe Injury information — coded and narrative — were considered simultaneously, no major findings or recommendations could be developed by using the data available.

4.4 CONCLUSION ON SEVERE INJURY DATA

The SOFA Working Group looked at the injury data from the perspective of the knowledge gained from its detailed investigation of FEs where the circumstances surrounding and leading up to, a FE were identified. The Working Group realized that Severe Injuries are not investigated or reported the way FEs are; hence, it is not always possible to identify these circumstances. The implication of this is clear: it is not possible for the Working Group to tell if one or more of its five safety recommendations applies to a particular Severe Injury event. The SOFA Working Group makes this information available in the interest of railroad safety.

Table 6: 446 Severe Injuries by 15 Attributes and 7 Track Locations January 1, 1997 to March 31, 2000	yard	main/branch line	industry	siding	highway/roadway	passenger terminal	other	row total	row
JOB CODE									
conductor, road freight-608	26	29	5	4	5	0	5	74	16.6%
conductor, yard-614	51	3	17	0	0	0	1	72	16.1%
brakeman, yard-615	38	4	10	1	0	0	2	55	12.3%
engineer, road freight-617	20	17	0	3	5	0	4	49	11.0%
brakeman, road freight local-613	21	10	8	5	1	0	1	46	10.3%
conductor, road freight local-609	20	9	10	5	0	0	2	46	10.3%
brakeman, road freight through-612	8	5	6	4	1	0	0	24	5.4%
conductor, road passenger-606	8	7	0	0	0	1	3	19	4.3%
engineer, yard-619	15	2	0	1	1	0	0	19	4.3%
engineer, road passenger-616	8	6	0	0	0	1	0	15	3.4%
conductor, asst. road passenger-607	3	2	0	0	0	3	1	9	2.0%
engineer, road freight-618	5	2	1	0	0	0	1	9	2.0%
switch tender-601	1	2	2	0	0	0	0	5	1.1%
hostler, outside-603	2	0	0	0	0	0	0	2	0.4%
brakeman, lead passenger-611	1	0	0	0	0	0	0	1	0.2%
fireman, yard-623	1	0	0	0	0	0	0	1	0.2%
column totals	228	98	59	23	13	5	20	446	
	51%	22%	13%	5%	3%	1%	4%		
INJURY TYPE									
fracture-70	176	81	43	20	13	4	19	356	79.8%
amputation-80	45	10	12	2	0	0	0	69	15.5%
other burns-50	5	4	4	1	0	1	1	16	3.6%
electric shock/burns-40	2	2	0	0	0	0	0	4	0.9%
dislocation-60	0	1	0	0	0	0	0	1	0.2%
column totals	228	98	59	23	13	5	20	446	
	51%	22%	13%	5%	3%	1%	4%		

Table 6: 446 Severe Injuries by 15 Attributes and 7 Track Locations (cont.) January 1, 1997 to March 31, 2000	yard	main/branch line	industry	siding	highway/roadway	passenger terminal	other	row total	row
INJURY LOCATION									
leg or foot	119	50	28	10	2	2	14	225	50.4%
torso	72	30	20	11	9	2	5	149	33.4%
arm or hand	20	7	7	1	2	0	0	37	8.3%
head or face	15	8	4	1	0	1	1	30	6.7%
various body parts	2	3	0	0	0	0	0	5	1.1%
column totals	228	98	59	23	13	5	20	446	
	51%	22%	13%	5%	3%	1%	4%		
YEAR									
1997	72	28	23	5	4	1	6	139	31.2%
1998	66	32	18	12	3	0	6	137	30.7%
1999	67	31	16	6	4	3	8	135	30.3%
2000, Jan-March	23	7	2	0	2	1	0	35	7.8%
column totals	228	98	59	23	13	5	20	446	
	51%	22%	13%	5%	3%	1%	4%		
MONTH									
Jan	27	9	6	3	4	1	5	55	12.3%
Mar	31	11	7	0	0	1	3	53	11.9%
Feb	30	10	5	1	1	0	4	51	11.4%
Oct	22	8	2	5	2	0	1	40	9.0%
Sep	21	7	7	0	0	1	0	36	8.1%
Aug	12	11	6	3	2	0	0	34	7.6%
Dec	14	10	4	3	0	1	2	34	7.6%
Nov	18	6	5	1	1	1	1	33	7.4%
Jul	15	8	6	4	0	0	0	33	7.4%
Jun	15	5	4	0	1	0	2	27	6.1%
May	14	5	4	1	1	0	1	26	5.8%
Apr	9	8	3	2	1	0	1	24	5.4%
column totals	228	98	59	23	13	5	20	446	
	51%	22%	13%	5%	3%	1%	4%		

Table 6: 446 Severe Injuries by 15 Attributes and 7 Track Locations (cont.) January 1, 1997 to March 31, 2000	yard	main/branch line	industry	siding	highway/roadway	passenger terminal	other	row total	row
DAY									
Thursday	37	18	17	4	3	1	4	84	18.8%
Friday	43	15	7	1	2	1	3	72	16.1%
Tuesday	36	14	11	4	1	1	3	70	15.7%
Monday	26	13	8	4	4	0	2	57	12.8%
Wednesday	30	14	6	1	2	1	3	57	12.8%
Sunday	32	12	2	6	0	1	3	56	12.6%
Saturday	24	12	8	3	1	0	2	50	11.2%
column totals	228	98	59	23	13	5	20	446	
	51%	22%	13%	5%	3%	1%	4%		
TIME OF DAY									
00:00-01:00	17	10	4	1	3	0	2	37	8.3%
01:01-02:00	12	5	1	1	0	0	0	19	4.3%
02:01-03:00	9	5	1	0	0	0	0	15	3.4%
03:01-04:00	13	5	0	1	1	0	0	20	4.5%
04:01-05:00	5	2	0	2	0	1	0	10	2.2%
05:01-06:00	3	2	3	1	0	0	3	12	2.7%
06:01-07:00	4	1	2	0	0	0	0	7	1.6%
07:01-08:00	6	3	0	2	2	1	2	16	3.6%
08:01-09:00	10	4	5	0	0	0	0	19	4.3%
09:01-10:00	10	6	2	0	1	0	3	22	4.9%
10:01-11:00	5	3	3	1	1	0	0	13	2.9%
11:01-12:00	14	5	4	1	1	0	2	27	6.1%
12:01-13:00	5	8	5	2	0	0	1	21	4.7%
13:01-14:00	11	5	5	0	0	0	0	21	4.7%
14:01-15:00	11	7	1	0	0	1	1	21	4.7%
15:01-16:00	11	1	1	1	1	0	0	15	3.4%
16:01-17:00	12	6	3	1	0	0	0	22	4.9%
17:01-18:00	13	4	5	2	2	0	0	26	5.8%
18:01-19:00	8	1	4	1	0	0	1	15	3.4%
19:01-20:00	12	4	2	2	0	0	1	21	4.7%
20:01-21:00	8	5	2	0	0	2	2	19	4.3%
21:01-22:00	12	2	3	3	1	0	1	22	4.9%
22:01-23:00	10	2	0	0	0	0	0	12	2.7%
23:01-24:00	7	2	3	1	0	0	1	14	3.1%
column totals	228	98	59	23	13	5	20	446	
	51%	22%	13%	5%	3%	1%	4%		

Table 6: 446 Severe Injuries by 15 Attributes and 7 Track Locations (cont.) January 1, 1997 to March 31, 2000	yard	main/branch line	industry	siding	highway/roadway	passenger terminal	other	row total	row
AGE									
45-50	47	27	17	4	2	2	8	107	24.0%
51-56	48	12	11	8	1	2	2	84	18.8%
39-44	41	17	6	2	7	0	3	76	17.0%
57-62	38	18	10	4	2	0	2	74	16.6%
33-38	19	12	5	1	0	1	3	41	9.2%
27-32	18	11	6	1	1	0	1	38	8.5%
21-26	8	1	4	2	0	0	0	15	3.4%
63-68	7	0	0	1	0	0	1	9	2.0%
15-20	2	0	0	0	0	0	0	2	0.4%
column totals	228	98	59	23	13	5	20	446	
	51%	22%	13%	5%	3%	1%	4%		

Table 6: 446 Severe Injuries by 15 Attributes and 7 Track Locations (cont.) January 1, 1997 to March 31, 2000	yard	main/branch line	industry	siding	highway/roadway	passenger terminal	other	row total	row
ACTIVITY									
walking	54	22	14	8	1	1	8	108	24.2%
riding	33	12	12	5	9	0	0	71	15.9%
getting off	28	9	7	2	0	0	1	47	10.5%
stepping down	15	9	4	2	0	3	4	37	8.3%
standing	9	3	4	0	0	0	2	18	4.0%
getting on	9	1	3	1	0	1	0	15	3.4%
operating	6	5	0	1	1	0	0	13	2.9%
adjusting coupler	10	0	0	0	0	0	0	10	2.2%
climbing over/on	6	3	0	1	0	0	0	10	2.2%
crossing over	7	1	1	1	0	0	0	10	2.2%
jumping from	1	6	2	0	0	0	0	9	2.0%
lining switches	5	2	2	0	0	0	0	9	2.0%
other	3	3	3	0	0	0	0	9	2.0%
pulling pin/uncoupling	5	0	2	1	0	0	0	8	1.8%
stepping	6	1	0	0	0	0	1	8	1.8%
closing	3	3	1	0	0	0	0	7	1.6%
sitting	1	4	0	0	1	0	1	7	1.6%
adjusting, other	5	0	0	0	0	0	0	5	1.1%
coupling air hose	5	0	0	0	0	0	0	5	1.1%
inspecting	2	3	0	0	0	0	0	5	1.1%
opening	2	3	0	0	0	0	0	5	1.1%
stepping over	2	2	0	0	0	0	0	4	0.9%
reaching	1	0	1	0	0	0	1	3	0.7%
74…unknown	2	0	0	0	0	0	0	2	0.4%
75…unknown	1	0	0	1	0	0	0	2	0.4%
driving (vehicle…)	0	0	0	0	1	0	1	2	0.4%
handling other	0	1	1	0	0	0	0	2	0.4%
opening/closing angle cock	0	2	0	0	0	0	0	2	0.4%
uncoupling air hose	1	0	0	0	0	0	1	2	0.4%
bending, stooping	1	0	0	0	0	0	0	1	0.2%
crossing between	0	0	1	0	0	0	0	1	0.2%
flagging	0	1	0	0	0	0	0	1	0.2%
handling car parts	1	0	0	0	0	0	0	1	0.2%
handling loc parts	0	1	0	0	0	0	0	1	0.2%
handling material, general	1	0	0	0	0	0	0	1	0.2%
jumping onto	0	0	1	0	0	0	0	1	0.2%
pulling	1	0	0	0	0	0	0	1	0.2%

Table 6: 446 Severe Injuries by 15 Attributes and 7 Track Locations (cont.) January 1, 1997 to March 31, 2000	yard	main/branch line	industry	siding	highway/roadway	passenger terminal	other	row total	row
repairing	1	0	0	0	0	0	0	1	0.2%
running	1	0	0	0	0	0	0	1	0.2%
welding	0	1	0	0	0	0	0	1	0.2%
column totals	228	98	59	23	13	5	20	446	
	51%	22%	13%	5%	3%	1%	4%		

Table 6: 446 Severe Injuries by 15 Attributes and 7 Track Locations (cont.) January 1, 1997 to March 31, 2000	yard	main/branch line	industry	siding	highway/roadway	passenger terminal	other	row total	row
INJURY EVENT									
slipped, fell, stumbled, etc. due to climatic…	23	9	4	2	0	1	8	47	10.5%
slipped, fell, stumbled, etc. due to object…	28	13	2	1	1	0	1	46	10.3%
slipped, fell, stumbled, etc. due to irregular…	24	8	3	3	0	0	3	41	9.2%
lost balance	16	8	7	3	0	2	1	37	8.3%
struck by on-track equipment	21	2	5	1	0	0	0	29	6.5%
70-unknown	17	5	2	2	0	1	1	28	6.3%
struck against object	12	1	6	1	0	0	0	20	4.5%
collision between on-track equipment	8	9	1	1	0	0	0	19	4.3%
missed handhold, grabiron, step, etc.	10	3	3	3	0	0	0	19	4.3%
other (desribe in narrative)	7	5	4	0	0	0	0	16	3.6%
slack action, draft, compressive buff/coupling	9	2	0	1	0	0	0	12	2.7%
sudden/unexpected movement of on-track equipment	8	1	2	0	0	0	0	11	2.5%
stepped on object	6	3	1	0	0	0	1	11	2.5%
collision/impact-auto, truck, bus, van, etc.	0	0	0	0	10	0	0	10	2.2%
slipped, fell, stumbled, etc. on oil, grease	6	1	1	0	0	0	1	9	2.0%
struck by object	2	5	2	0	0	0	0	9	2.0%
exposure to chemicals-external	3	1	3	0	0	1	0	8	1.8%
highway-rail collision/impact	0	7	1	0	0	0	0	8	1.8%
defective/malfunctioning equipment	4	2	1	0	0	0	0	7	1.6%
derailments	4	1	2	0	0	0	0	7	1.6%
caught in or crushed by materials	3	2	1	0	0	0	0	6	1.3%
sudden/unexpected movement of material	2	1	2	0	0	0	1	6	1.3%
68…unknown	3	1	1	0	0	0	0	5	1.1%
overexertion	0	2	1	1	0	0	0	4	0.9%
bodily function/sudden movement, e.g., sneezing	3	0	0	0	0	0	0	3	0.7%
other impacts on-track equipment	1	0	1	1	0	0	0	3	0.7%
struck by falling object	1	0	1	0	0	0	1	3	0.7%
sudden/unexpected movement of on-track equipment	0	0	0	0	2	0	1	3	0.7%
69…unknown	1	1	0	0	0	0	0	2	0.4%
71…unknown	0	1	1	0	0	0	0	2	0.4%
assulted by other	0	2	0	0	0	0	0	2	0.4%
caught in or compressed by other machinery	2	0	0	0	0	0	0	2	0.4%
pushed/shoved into/against	1	0	0	1	0	0	0	2	0.4%
ran into object/equipment	1	0	0	1	0	0	0	2	0.4%
ran into on-track equipment	1	0	0	1	0	0	0	2	0.4%
climatic conditions, other (e.g., high winds)	0	0	0	0	0	0	1	1	0.2%

Table 6: 446 Severe Injuries by 15 Attributes and 7 Track Locations (cont.) January 1, 1997 to March 31, 2000	yard	main/branch line	industry	siding	highway/roadway	passenger terminal	other	row total	row
exposure to welding light	0	1	0	0	0	0	0	1	0.2%
pushed/shoved onto	0	0	1	0	0	0	0	1	0.2%
rubbed, abraded, etc.	1	0	0	0	0	0	0	1	0.2%
sudden release of air	0	1	0	0	0	0	0	1	0.2%
column totals	228	98	59	23	13	5	20	446	
	51%	22%	13%	5%	3%	1%	4%		

Table 6: 446 Severe Injuries by 15 Attributes and 7 Track Locations (cont.) January 1, 1997 to March 31, 2000	yard	main/branch line	industry	siding	highway/roadway	passenger terminal	other	row total	row
EQUIPMENT LOCATION									
freight car moving	44	7	22	5	0	0	0	78	17.5%
other non-equip	25	16	10	2	2	0	15	70	15.7%
freight train moving	29	22	12	5	1	0	0	69	15.5%
freight train standing	41	18	1	6	0	0	0	66	14.8%
locomotive standing	39	15	5	2	0	0	1	62	13.9%
freight car standing	23	4	6	3	0	0	0	36	8.1%
locomotive moving	17	5	0	0	0	0	0	22	4.9%
pass train moving	2	7	0	0	0	1	1	11	2.5%
pass train standing	3	1	0	0	0	2	1	7	1.6%
auto	2	0	0	0	2	0	1	5	1.1%
pass car standing	2	1	0	0	0	2	0	5	1.1%
van passenger	0	0	0	0	4	0	1	5	1.1%
taxi	0	0	0	0	4	0	0	4	0.9%
crane	0	1	0	0	0	0	0	1	0.2%
loaders, etc.	0	0	1	0	0	0	0	1	0.2%
other equip	1	0	0	0	0	0	0	1	0.2%
other on-track equip moving	0	0	1	0	0	0	0	1	0.2%
other on-track equip standing	0	1	0	0	0	0	0	1	0.2%
truck	0	0	1	0	0	0	0	1	0.2%
column totals	228	98	59	23	13	5	20	446	
	51%	22%	13%	5%	3%	1%	4%		

Table 6: 446 Severe Injuries by 15 Attributes and 7 Track Locations (cont.) January 1, 1997 to March 31, 2000	yard	main/branch line	industry	siding	highway/roadway	passenger terminal	other	row total	row
WORKING LOCATION									
beside track	38	17	13	4	1	0	2	75	16.8%
near on-track equip-on ground	42	9	12	2	0	0	2	67	15.0%
in/on loc	29	31	2	4	0	0	0	66	14.8%
on side of car	33	3	14	5	1	1	0	57	12.8%
on end of car	14	5	7	4	0	0	0	30	6.7%
between tracks	12	3	5	0	0	0	0	20	4.5%
between cars/loc	13	2	2	1	0	0	0	18	4.0%
other location on loc	9	5	1	0	0	0	1	16	3.6%
on stairs	4	5	1	0	0	1	4	15	3.4%
at work station	2	4	0	0	0	2	6	14	3.1%
on track	11	0	0	2	0	0	0	13	2.9%
in car	2	4	0	1	3	1	0	11	2.5%
on ladder	8	2	0	0	0	0	0	10	2.2%
on platform	2	4	2	0	0	0	1	9	2.0%
in/operating vehicle	0	0	0	0	7	0	1	8	1.8%
other location	6	1	0	0	0	0	1	8	1.8%
on bridge/trestle	2	1	0	0	0	0	0	3	0.7%
on highway-rail crossing	0	2	0	0	0	1	0	3	0.7%
in tower	0	0	0	0	0	0	1	1	0.2%
under car	1	0	0	0	0	0	0	1	0.2%
under loc	0	0	0	0	0	0	1	1	0.2%
column totals	228	98	59	23	12	6	20	446	
	51%	22%	13%	5%	3%	1%	4%		

Table 6: 446 Severe Injuries by 15 Attributes and 7 Track Locations (cont.) January 1, 1997 to March 31, 2000	yard	main/branch line	industry	siding	highway/roadway	passenger terminal	other	row total	row
TOOLS, MACHINERY, APPLIANCES,									
STRUCTURES, SURFACES (ETC.)									
ground	81	34	19	5	0	1	8	148	33.2%
other	28	10	17	1	0	0	5	61	13.7%
ballast	23	11	4	4	0	0	1	43	9.6%
floor	9	13	1	2	2	0	3	30	6.7%
ladder	17	4	3	2	0	0	0	26	5.8%
coupler	15	0	1	0	0	0	0	16	3.6%
highway, street, road	0	5	1	0	10	0	0	16	3.6%
stair	5	5	1	1	0	1	3	16	3.6%
tie	8	1	2	1	0	0	0	12	2.7%
grabiron	5	2	2	2	0	0	0	11	2.5%
switch	5	1	3	2	0	0	0	11	2.5%
36…unknown	7	1	1	1	0	0	0	10	2.2%
door	4	4	1	0	0	0	0	9	2.0%
43…unknown	2	0	0	1	0	2	0	5	1.1%
baggage	4	0	0	0	0	0	0	4	0.9%
end of train device	2	1	0	1	0	0	0	4	0.9%
37…unknown	3	0	0	0	0	0	0	3	0.7%
bridge/trestle	2	1	0	0	0	0	0	3	0.7%
34…unknown	2	0	0	0	0	0	0	2	0.4%
42…unknown	0	0	1	0	1	0	0	2	0.4%
hose	0	2	0	0	0	0	0	2	0.4%
window	2	0	0	0	0	0	0	2	0.4%
38…unknown	0	1	0	0	0	0	0	1	0.2%
39…unknown	0	0	0	0	0	1	0	1	0.2%
40…unknown	0	1	0	0	0	0	0	1	0.2%
41…unknown	1	0	0	0	0	0	0	1	0.2%
46…unknown	0	0	1	0	0	0	0	1	0.2%
TOFC, COFC	1	0	0	0	0	0	0	1	0.2%
caboose	1	0	0	0	0	0	0	1	0.2%
cutting tools	0	0	1	0	0	0	0	1	0.2%
fusees/torpedoes	1	0	0	0	0	0	0	1	0.2%
welder-electric	0	1	0	0	0	0	0	1	0.2%
column totals	228	98	59	23	13	5	20	446	
	51%	22%	13%	5%	3%	1%	4%		

Table 6: 446 Severe Injuries by 15 Attributes and 7 Track Locations (cont.) January 1, 1997 to March 31, 2000	yard	main/branch line	industry	siding	highway/roadway	passenger terminal	other	row total	row
ASSIGNED CAUSE OF INJURY									
human factors	83	36	19	12	6	2	4	162	36.3%
undetermined	63	34	20	6	4	0	9	136	30.5%
environmental	33	10	5	3	3	2	7	63	14.1%
equip procedures not followed	25	6	6	1	0	1	0	39	8.7%
equipment	20	8	6	0	0	0	0	34	7.6%
track	3	0	3	0	0	0	0	6	1.3%
no safety equip	0	1	0	1	0	0	0	2	0.4%
physical condition	1	1	0	0	0	0	0	2	0.4%
trespassing	0	2	0	0	0	0	0	2	0.4%
column totals	228	98	59	23	13	5	20	446	
	51%	22%	13%	5%	3%	1%	4%		

Table 6: 446 Severe Injuries by 15 Attributes and 7 Track Locations (cont.) January 1, 1997 to March 31, 2000	yard	main/branch line	industry	siding	highway/roadway	passenger terminal	other	row total	row
RAILROAD									
UP	45	36	12	4	5	0	8	110	24.7%
CSX	41	10	4	4	0	0	1	60	13.5%
BNSF	23	9	6	6	4	0	3	51	11.4%
CR	28	4	1	1	1	0	0	35	7.8%
NS	14	9	3	4	2	0	1	33	7.4%
ATK	6	5	0	0	0	2	3	16	3.6%
IC	6	4	3	0	0	0	0	13	2.9%
SOO	5	1	4	0	1	0	0	11	2.5%
KCS	4	4	1	0	0	0	0	9	2.0%
LI	4	1	0	0	0	2	0	7	1.6%
MNCW	3	3	0	0	0	0	0	6	1.3%
IHB	3	0	2	0	0	0	0	5	1.1%
WC	4	1	0	0	0	0	0	5	1.1%
GTW	2	0	1	1	0	0	0	4	0.9%
SEPA	1	3	0	0	0	0	0	4	0.9%
BS	0	1	2	0	0	0	0	3	0.7%
CC	2	0	1	0	0	0	0	3	0.7%
FEC	0	0	2	0	0	0	1	3	0.7%
GRS	3	0	0	0	0	0	0	3	0.7%
IMRL	1	1	1	0	0	0	0	3	0.7%
NJTR	3	0	0	0	0	0	0	3	0.7%
URR	1	1	1	0	0	0	0	3	0.7%
CRSH	1	0	1	0	0	0	0	2	0.4%
CUVA	0	0	2	0	0	0	0	2	0.4%
FWWR	1	0	0	1	0	0	0	2	0.4%
IAIS	2	0	0	0	0	0	0	2	0.4%
MBTA	0	1	0	0	0	1	0	2	0.4%
PAL	2	0	0	0	0	0	0	2	0.4%
PATH	0	2	0	0	0	0	0	2	0.4%
TM	1	0	1	0	0	0	0	2	0.4%
WSOR	0	1	0	1	0	0	0	2	0.4%
AA	1	0	0	0	0	0	0	1	0.2%
AKDN	1	0	0	0	0	0	0	1	0.2%
ARR	1	0	0	0	0	0	0	1	0.2%
BAR	1	0	0	0	0	0	0	1	0.2%
BPRR	1	0	0	0	0	0	0	1	0.2%

Table 6: 446 Severe Injuries by 15 Attributes and 7 Track Locations (cont.) January 1, 1997 to March 31, 2000	yard	main/branch line	industry	siding	highway/roadway	passenger terminal	other	row total	row
CASS	1	0	0	0	0	0	0	1	0.2%
CDAC	1	0	0	0	0	0	0	1	0.2%
CONW	1	0	0	0	0	0	0	1	0.2%
CSS	0	0	1	0	0	0	0	1	0.2%
DGNO	1	0	0	0	0	0	0	1	0.2%
DH	0	0	1	0	0	0	0	1	0.2%
DSRR	0	0	1	0	0	0	0	1	0.2%
DWP	1	0	0	0	0	0	0	1	0.2%
EACH	1	0	0	0	0	0	0	1	0.2%
EJE	1	0	0	0	0	0	0	1	0.2%
ELKR	0	0	0	0	0	0	1	1	0.2%
FMWX	1	0	0	0	0	0	0	1	0.2%
GNBC	1	0	0	0	0	0	0	1	0.2%
GRWR	0	0	1	0	0	0	0	1	0.2%
GWWR	0	0	1	0	0	0	0	1	0.2%
HRT	0	0	0	1	0	0	0	1	0.2%
INRD	0	0	1	0	0	0	0	1	0.2%
KJRY	1	0	0	0	0	0	0	1	0.2%
KYLE	0	0	0	0	0	0	1	1	0.2%
LT	0	0	1	0	0	0	0	1	0.2%
MDLR	1	0	0	0	0	0	0	1	0.2%
MRL	0	0	1	0	0	0	0	1	0.2%
NECR	1	0	0	0	0	0	0	1	0.2%
NIRC	0	0	0	0	0	0	1	1	0.2%
PBR	1	0	0	0	0	0	0	1	0.2%
PHL	1	0	0	0	0	0	0	1	0.2%
PPU	1	0	0	0	0	0	0	1	0.2%
RT	0	0	1	0	0	0	0	1	0.2%
SB	0	0	1	0	0	0	0	1	0.2%
SERA	0	1	0	0	0	0	0	1	0.2%
SH	1	0	0	0	0	0	0	1	0.2%
TOE	0	0	1	0	0	0	0	1	0.2%
TXTX	1	0	0	0	0	0	0	1	0.2%
column totals	228	98	59	23	13	5	20	446	
	51%	22%	13%	5%	3%	1%	4%		

Table 7. 399 of 446 Severe Injuries Reported by Job Code and Track Location, January 1, 1997 to March 31, 2000

Job Code	yard	main or branch line	industry	siding	TOTAL
Conductor, road freight-608	26	29	5	4	64
Conductor, road freight local-609	20	9	10	5	44
Brakeman, road freight through-612	8	5	6	4	23
Brakeman, road freight local-613	21	10	8	5	44
Conductor, road passenger-606	8	7	0	0	15
Conductor, assist. Road passenger-607	3	2	0	0	5
TOTAL, ROAD TRAIN SERVICE	**86**	**62**	**29**	**18**	**195**
Conductor, yard-614	51	3	17	0	71
Brakeman, yard-615	38	4	10	1	53
TOTAL, YARD TRAIN SERVICE	**89**	**7**	**27**	**1**	**124**
TOTAL, TRAIN SERVICE	**175**	**69**	**56**	**19**	**319**
Engineer, road freight-617	20	17	0	3	40
Engineer, road passenger-616	8	16	0	0	24
Engineer, road freight-618	5	2	1	0	8
TOTAL, ROAD ENGINE SERVICE	**33**	**35**	**1**	**3**	**72**
Engineer, yard-619	15	2	0	1	18
TOTAL ENGINE SERVICE	**48**	**27**	**1**	**4**	**80**
ROAD, TRAIN & ENGINE	**119**	**87**	**30**	**21**	**257**
YARD, TRAIN & ENGINE	**104**	**9**	**27**	**2**	**142**
TOTAL	**223**	**96**	**57**	**23**	**399**

Table 8: 109 Severe Injuries Containing Narrative, 1997 to 1999

#	Narrative	Type injury	Injury location	Event
	ON GROUND AT START OF INJURY EVENT			
	'LIFESAVER 1' 7 of 109 (6.4 percent)			
1	WHILE ADJUSTING DEFECTIVE COUPLER SLACK ACTION OF CARS RESULTED IN CARS DRIFTING IN PINCHING EMPLOYEE	#70-fracture	torso	slack action, draft, compressive buff/coupling
2	5M. WALKING AROUND END OF TRAIN AND HIT KNUCKLE OF RAILCAR.	#70-fracture	torso	struck against object
3	FOR REASONS UNKNOWN, THE INJURED WENT BETWEEN A COUPLER OF TWO EMPTY GONS WHICH HE HAD PLACED INTO THE MILL AND A COUPLER OF TWO LOADED GONS WHICH HE HAD PULLED FROM THE SAME MILL. HE SUFFERED A CRUSHING INJURY TO THE PELVIC AREA WHEN CAUGHT BETWEEN	#70-fracture	torso	SUDDEN/UNEXPECTED MOVEMENT OF ON-TRACK EQUIPMENT
4	WHILE ATTEMPTING TO COUPLE ENGINE TO TANK CAR, THE COUPLING DID NOT MAKE. EMPLOYEE REACHED IN WITH LEFT HAND TO OPEN THE KNUCKLE, TANK CAR ROLLED BACK PINCHING LEFT HAND.	#80-amputation	arm or hand	caught in or compressed by other machinery
5	SWITCHING OUT BOX CARS TO SPOT VALLIANT PAPER SHED. SHOVED EMPTY BOXES DOWN TRACK #1. EMPLOYEE CUT 7 CARS OFF AND WAS IN PROCESS OF CHOCKING THE WHEELS AND SLACK RAN IN AND CAR WHEEL ROLLED UP ON CHOCK AND CAUGHT EMPLOYEE'S HAND BETWEEN CHOCK AND WHEEL	#80-amputation	arm or hand	SUDDEN/UNEXPECTED MOVEMENT OF ON-TRACK EQUIPMENT
6	EMPLOYEE HAD CUT OFF SCALE TEST CAR AND NOT SECURED IT. WHEN HE SAW IT START TO ROLL BACK TOWARDS HIM	#80-amputation	leg or foot	collision between on-track equipment
7	EMPLOYEE USED FOOT TO ALIGN DRAWER AND WAS CAUGHT BETWEEN COUPLERS.	#80-amputation	leg or foot	other (describe in narrative)
	'LIFESAVER 2' 9 of 109 (8.3 percent)			
1	THE Y21403 WAS STOPPED IN TRACK NO. 7 WITH THEIR ENGINE COUPLED TO A CUT OF CARS. THE Y21203 SHOVED A CUT OF CARS INTO THE REAR CAR OF THE Y21403 CAUSING THE SLACK TO RUN IN ON Y21403'S TRAIN. ENGINEER INJURED.	#70-fracture	head or face	slack action, draft, compressive buff/coupling
2	EMPLOYEE WAS STRUCK BY CAR BEING SHOVED INTO INDUSTRY.	#70-fracture	torso	STRUCK by ON-TRACK EQUIPMENT
3	EMPLOYEE WAS WALKING TOO CLOSE TO TRACK AND WAS STRUCK BY ROLLING HOPPER CAR.	#70-fracture	torso	STRUCK by ON-TRACK EQUIPMENT

Table 8: 109 Severe Injuries Containing Narrative, 1997 to 1999 (cont.)

#	Narrative	Type injury	Injury location	Event
4	COUPLING AIR HOSES BETWEEN CARS, WAS KNOCKED DOWN AND DRAGGED BY CAR, LEFT LEG SEVERED. 5M (RESULT) SHOULD BE NEW CODE 41 (HOSES).	#80-amputation	leg or foot	pushed/shoved into/against
5	EMPLOYEE WAS PERFORMING A ROLL-BY INSPECTION OF A TRAIN DEPARTING THE WEST YARD WHEN SHE APPARENTLY BACKED INTO THE PATH OF 2 LITE ENGINES ON THE WEST LEAD. EMPLOYEE WAS STRUCK AND RUN OVER BY THE LI TE ENGINES. EMPLOYEE SUSTAINED MULTIPLE INJURIES	#80-amputation	leg or foot	STRUCK by ON-TRACK EQUIPMENT
6	EMPLOYEE HAD LEG RUN OVER BY ROLLING CARS.	#80-amputation	leg or foot	STRUCK by ON-TRACK EQUIPMENT
7	REMOVING LOCK FROM ELECTRIC SWITCH BOX WITH BACK TOWARD THE RAIL, STRUCK BY ENGINES AS THEY WENT BY HITTING EMPLOYEE CAUSING HIM TO FALL AND LEFT LEG SEVERED.	#80-amputation	leg or foot	STRUCK by ON-TRACK EQUIPMENT
8	5J. LEANING BACK READING CAR NUMBERS WHEN CAR STRUCK HIM FROM BEHIND (BELIEVE UNCOUPLER LEVER STRUCK HIM IN THE BACK KNOCKING HIM BETWEEN THE TRACKS). UPDATE ON 5R. 1/4/99 SPOKE TO EMPLOYEE ABOUT RET RAINING FOR SUITABLE POSITION. SUBSEQUENTLY SERVE	#80-amputation	leg or foot	SUDDEN/UNEXPECTED MOVEMENT OF ON-TRACK EQUIPMENT
9	COUPLING AIR BETWEEN CARS WHEN TRACK MOVED.	#80-amputation	leg or foot	SUDDEN/UNEXPECTED MOVEMENT OF ON-TRACK EQUIPMENT
	SLIP, TRIP, TWIST, OR FALL 10 of 109 (9.2 percent)			
1	WALKING TOWARD SWITCH FOR TRACK ALIGNMENT. TRIPPED ON END OF CROSS TIE AND FELL, HITTING FACE ON SW	#70-fracture	head or face	slipped, fell, stumbled, etc. due to object
2	EMPLOYEE APPARENTLY TWISTED ANKLE WHILE WALKING DOWN EMBANKMENT TO GET VAN TO RETURN TO OFFICE.	#70-fracture	leg or foot	70...unknown
3	EMPLOYEE WAS STANDING IN BETWEEN #3 RUNNERS AND #1 RELAY, THREE TO FOUR CAR LENGTHS FROM WESTEND TO MAKE A CUT ON CAR ETTX 950409 IN TRACK #1. HE STATED THAT HE COULDN'T PULL THE PIN ON HIS FIRST ATTEMPT, SO HE TRIED A SECOND TIME AND HIS RIGHT FOOT	#70-fracture	leg or foot	slipped, fell, stumbled, etc. due to climatic condition
4	WALKING FROM CAB TO BUILDING, SLIPPED ON SNOW AND TWISTED RIGHT ANKLE.	#70-fracture	leg or foot	slipped, fell, stumbled, etc. due to climatic condition
5	WHILE WALKING ON THE STATION PLATFORM ON EDGE AND FELL FRACTURING BONES IN HIS ANKLE.	#70-fracture	leg or foot	slipped, fell, stumbled, etc. due to climatic condition

Table 8: 109 Severe Injuries Containing Narrative, 1997 to 1999 (cont.)

#	Narrative	Type injury	Injury location	Event
6	EMPLOYEE STEPPED BACK IN DOORWAY TO LET ANOTHER EMPLOYEE ENTER DOOR AND STEPPED ON UNEVEN SURFACE CAUSING HIM TO TURN HIS ANKLE.	#70-fracture	leg or foot	slipped, fell, stumbled, etc. due to irregular surface
7	EMPLOYEE WAS WALKING EASTWARD HOLDING UPCUT LEVER TO SHOVE CARS INTO 18 TRACK WHEN LEFT ANKLE TURNED	#70-fracture	leg or foot	slipped, fell, stumbled, etc. due to irregular surface
8	YARD CONDUCTOR WAS UNCOUPLING AIR HOSE UNDER ENGINE WHEN HE SLIPPED BACKWARD AND CAUGHT HIMSELF WITH HIS HAND ON THE RAIL. HE FELT HIS SHOULDER POP. MRI REVEALED NON-DISPLACED FRACTURE IN HIS SHOULDER	#70-fracture	torso	70...unknown
9	EMPLOYEE SLIPPED ON WET GROUND AND FELL BREAKING HIS LEFT HIP. EMPLOYEE HAS NOT YET RETURNED TO WORK.	#70-fracture	torso	slipped, fell, stumbled, etc. due to climatic condition
10	EMPLOYEE WALKING BACK TO YARD OFFICE, WAS IN PROCESS OF CROSSING OVER TRACKS. WHEN HE STEPPED OVER RAIL BEHIND FROG, HIS RIGHT FOOT SLIPPED ON PIECES OF COKE IN 6-FOOT. HIS RIGHT FOOT HAD ALL HIS WEIGHT ON IT AND HE CAUGHT HIS BALANCE WITH HIS LEFT	#70-fracture	torso	slipped, fell, stumbled, etc. due to object
	THROWING SWITCHES **3 of 109 (2.8 percent)**			
1	SLIPPED DURING HEAVY RAINSTORM WHILE MANUALLY THROWING SWITCH.	#70-fracture	leg or foot	slipped, fell, stumbled, etc. due to object
2	EMPLOYEES HANDS SLIPPED OFF SWITCH HANDLE.	#70-fracture	torso	71...unknown
3	EMPLOYEE TORE LIGAMENT IN LEFT SHOULDER WHILE THROWING CONOCO 2-3 SWITCH.	#70-fracture	torso	overexertion
	ON EQUIPMENT AT START OF INJURY EVENT			
	CLOSE CLEARANCE **5 of 109 (4.6 percent)**			
1	EMPLOYEE WAS RIDING POINT OF CAR CNW 170703 INTO INDUSTRY, AND DID NOT CHECK THE CLOSENESS OF CLEAR	#70-fracture	torso	other impacts-on track equipment
2	BRAKEMAN WAS RIDING ON SIDE OF CAR WHEN SMALL TREE SNAGGED PANTS AND PULLED HER OFF SIDE OF CAR. IMPACT WITH GROUND BROKE HER TAILBONE.	#70-fracture	torso	ran into object/equipment
3	EMPLOYEE WAS KNOCKED FROM SIDE OF CAR BY MODIFIED HIGH MAST SWITCH. EMPLOYEE EXPECTED TO RETURN AROUND 6/1.	#70-fracture	torso	struck against object

Table 8: 109 Severe Injuries Containing Narrative, 1997 to 1999 (cont.)

#	Narrative	Type injury	Injury location	Event
4	WHILE RIDING SIDE OF CAR AND WAS KNOCKED TO GROUND WHEN STRUCK BY DERAIL INDICATOR STOP SIGN IN UPRI GHT POSITION.	#70-fracture	torso	struck against object
5	WHILE RIDING THE SIDE OF RAIL CAR EMPLOYEE FINGER STRUCK A SIGN FOULING THE TRACK RESULTING IN THE TIP OF THE FINGER BEING AMPUTATED.	#80-amputation	arm or hand	struck against object
	JUMPING OFF EQUIPMENT 4 of 109 (3.7 percent)			
1	EMPLOYEE JUMPED FROM MOVING LOCOMOTIVE THINKING IT WAS GOING TO STRIKE ANOTHER CONSIST.	#70-fracture	head or face	69...unknown
2	THE STEP OF THE IRON LADLE P. FERRANTE WAS RIDING ON BROKE AND WHEN HE JUMPED TO THE GROUND HE FRACTURED	#70-fracture	leg or foot	defective/malfunctioning equipment
3	YARD CONDUCTOR SUSTAINED A BROKEN TIBIA AND FIBIA WHEN HE JUMPED FROM CAR AS IT WAS DERAILING. THE DERAILMENT DID NOT MEET THE THRESHOLD FOR REPORTING.	#70-fracture	leg or foot	derailments
4	TWO TRAINS GIVEN TRACK WARRANTS FOR THE SAME TRACK. CONDUCTOR FRACTURED LEG AS HE STEPPED OFF A MOVING	#70-fracture	leg or foot	other (describe in narrative)
	GETTING OFF EQUIPMENT 17 of 109 (15.6 percent)			
1	5J-CLIMBING DOWN LADDER.	#70-fracture	inj to various body parts of equal severity	slipped, fell, stumbled, etc. due to climatic condition
2	STEPPED OFF CAR TO MAKE BRAKE TEST. TWISTED LEFT ANKLE WHEN DISMOUNTED FROM CAR.	#70-fracture	leg or foot	lost balance
3	EMPLOYEE WAS IN THE PROCESS OF STEPPING OFF A BRAKE PLATFORM ON A RAILCAR AND MISSED THE STEP.	#70-fracture	leg or foot	missed handhold, grabiron, step, etc.
4	EMPLOYEE STATED THAT HE PUT HIS RIGHT FOOT ON THE GROUND WHILE DISMOUNTING EQUIPMENT, AND THAT HIS FOOT	#70-fracture	leg or foot	other (describe in narrative)
5	EMPLOYEE SLIPPED ON LOCOMOTIVE STEP DUE TO MUDDY CONDITIONS. FOOT WENT UNDER STOP AND HIT RAIL CAUSING	#70-fracture	leg or foot	slipped, fell, stumbled, etc. due to climatic condition
6	STEPPING DOWN FROM ENGINE TO SET HANDBRAKE, SLIPPED ON STEPS TO WALKWAY.	#70-fracture	leg or foot	slipped, fell, stumbled, etc. due to climatic condition

Table 8: 109 Severe Injuries Containing Narrative, 1997 to 1999 (cont.)

#	Narrative	Type injury	Injury location	Event
7	GOT OFF LOCOMOTIVE WITH BROOM IN HAND TO SWEEP OUT SWITCH (IT WAS SNOWING HARD), SLIPPED AND FELL BACK	#70-fracture	leg or foot	slipped, fell, stumbled, etc. due to climatic condition
8	EMPLOYEE WAS GETTING DOWN FROM 113/15 LOCOMOTIVE. AS HIS RIGHT FOOT CAME IN CONTACT WITH THE GROUND, HE TWISTED HIS RIGHT ANKLE. EMPLOYEE REQUESTED MEDICAL TREATMENT AND THE INJURY WAS DIAGNOSED AS A FRACTURE TO THE RIGHT ANKLE.	#70-fracture	leg or foot	slipped, fell, stumbled, etc. due to irregular surface
9	EMPLOYEE WAS ENDING HIS SHIFT FOR THE DAY. WHEN BACKING DOWN FROM THE LOCOMOTIVE, HE STEPPED ON SOFT	#70-fracture	leg or foot	slipped, fell, stumbled, etc. due to irregular surface
10	EMPLOYEE WAS DISMOUNTING A BOX CAR AFTER APPLYING HAND BRAKE AND STEPPED DOWN ON SOME UNEVEN BALLAST . HIS ANKLE GAVE WAY AND TWISTED, RESULTING IN A FRACTURE TO THE RIGHT ANKLE.	#70-fracture	leg or foot	stepped on object
11	WHILE DISMOUNTING ACAR, EMPLOYEE CLAIMS HE STEPPED ON A ROCK CAUSING HIM TO TWIST HIS ANKLE.	#70-fracture	leg or foot	stepped on object
12	EMPLOYEE STRUCK KNEE ON HAND BRAKE WHEEL WHILE GETTING OFF LOCOMOTIVE TO LINE SWITCH.	#70-fracture	leg or foot	struck against object
13	AS CONDUCTOR WAS STEPPING DOWN FROM CAR HE REACHED FOR GRABIRON AND MISSED FALLING BACKWARDS OF CAR BREAKING LEFT HIP AND WRIST.	#70-fracture	torso	missed handhold, grabiron, step, etc.
14	EMPLOYEE MISSED STEP WHILE GETTING OFF SIDE OF TANK CAR AND STRUCK SIDE ON TANK PLATFORM.	#70-fracture	torso	missed handhold, grabiron, step, etc.
15	EMPLOYEE DISMOUNTING LOCOMOTIVE TOO CLOSE TO END OF BRIDGE. PLANTED ONE FOOT ON GROUND, LET GO OF LADDER AND STEPPED INTO SPACE.	#70-fracture	torso	slipped, fell, stumbled, etc. due to irregular surface
16	BS CONDUCTOR WAS DISMOUNTING A MOVING RAILROAD CAR, EMPLOYEE STRUCK A STEEL POLE, AS HE DISMOUNTED.	#70-fracture	torso	struck against object
17	EMPLOYEE BRAKEMAN APPARENTLY DISMOUNTED FROM REAR OF LOCOMOTIVE TO LINE A SWITCH WHILE TRAIN WAS TRAVELING AT 2-3 MILES PER HOUR. CONDUCTOR OF CREW HAD JUST DISMOUNTED PRIOR TO THIS WHEN HE NOTICED THAT BRAKEMAN WAS ON THE TRACKS BETWEEN LOCOMOTIVE	#80-amputation	leg or foot	other (describe in narrative)

Table 8: 109 Severe Injuries Containing Narrative, 1997 to 1999 (cont.)

#	Narrative	Type injury	Injury location	Event
	KNOCKED OFF EQUIPMENT BY COLLISON, DERAILMENT, SLACK ACTION, OR LOST BALANCE			
	9 of 109 (8.3 percent)			
1	Y304 SHOVING TRACK 12 FROM SOUTH END SHOVED TRACK OUT N E INTO SIDE OF Y301 ON LEAD N E YARD DERAILING	#70-fracture	head or face	collision between on-track equipment
2	EMPLOYEE WAS TYING A HANDBRAKE ON WITH ONE FOOT ON THE LADDER WHEN SHE LOST HER GRIP AND FELL OFF STEP	#70-fracture	leg or foot	lost balance
3	HE WAS ON THE END OF THE CAR WHILE THE TRAIN WAS MOVING. HE DECIDED TO MOVE ACROSS THE PLATFORM, EVEN THOUGH HE SAID HE KNEW BETTER, AND THE TRAIN SLOWED CAUSING HIM TO LOSE HIS BALANCE AND FALL. A RAILCAR STRUCK HIS ANKLE BEFORE HE COULD MOVE IT.	#70-fracture	leg or foot	lost balance
4	CONDUCTOR WAS RIDING THE 8TH CAR FROM THE REAR, SLACK RAN OUT AND CONDUCTORS LEADING FOOT (RIGHT) SLIPPED OFF STIPPUP OF THE SIDE LADDER CAUSING HIS BODY TO ROTATE FRACTURING HIS LEFT KNEE.	#70-fracture	leg or foot	slack action, draft, compressive buff/coupling
5	EMPLOYEE LOST FOOTING IN STIRRUP AND WAS DRAGGED BY TRAIN.	#70-fracture	torso	70...unknown
6	RIDING THE HANDBRAKE ON CAR, CARS ROLLED INTO ENGINE KNOCKING EMPLOYEE TO GROUND, LACERATION TO FORE HEAD AND FRACTURED HIP.	#70-fracture	torso	collision between on-track equipment
7	5L - EMPLOYEE WAS THROWN FROM END OF THE CAR THAT HE WAS RIDING AFTER COLLISION WITH ANOTHER TANK CAR.	#70-fracture	torso	collision between on-track equipment
8	CSXT8611 SIDE SWIPED BY HTTX 92932 WHILE MOVING NORTH IN #4 TRACK 2ND ENGINE 8222 ALSO DAMAGED. S E	#80-amputation	arm or hand	collision between on-track equipment
9	WHILE ATTEMPTING TO TIE HANDBRAKE, SLIPPED OFF CAR ONTO GROUND AND LOWER RIGHT LEG WAS SEVERED BY CAR.	#80-amputation	leg or foot	slipped, fell, stumbled, etc. due to irregular surface
	HIGHWAY-RAIL COLLSION/IMPACT			
	3 of 109 (2.8 percent)			
1	GRADE CROSSING COLLISION - JUMPED FROM LOCOMOTIVE BEFORE IMPACT TO AVOID BEING CAUGHT BETWEEN LOCOMOTIVES AND TRACTOR TRAILER, FRACTURING ANKLE.	#70-fracture	leg or foot	highway-rail collision/impact
2	PASSENGER ON AMTRAK #59 THAT STRUCK TRACTOR TRAILER ON CROSSING.	#70-fracture	torso	highway-rail collision/impact

Table 8: 109 Severe Injuries Containing Narrative, 1997 to 1999 (cont.)

#	Narrative	Type injury	Injury location	Event
3	A TRACTOR-TRAILER FAILED TO YIELD THE RIGHT OF WAY AT A HIGHWAY GRADE CROSSING AND WAS ABOUT TO STRIKE	#70-fracture	torso	highway-rail collision/impact
	WALKING ON, GETTING ON EQUIPMENT 10 of 109 (9.2 percent)			
1	CONDUCTOR TRIPPED UP LOCOMOTIVE STEP.	#70-fracture	leg or foot	70...unknown
2	WHILE LOCOMOTIVE WAS STOPPED TO UNCOUPLE CARS, YARD FOREMAN WAS WALKING ON LOCOMOTIVE WALKWAY WHEN HE	#70-fracture	leg or foot	missed handhold, grabiron, step, etc.
3	EMPLOYEE STATES: WAS WALKING FROM ONE ENGINE TO ANOTHER AND RIGHT FOOT SLIPPED OFF PLATFORM HINGE OF	#70-fracture	leg or foot	slipped, fell, stumbled, etc. due to irregular surface
4	EMPLOYEE STATES WHILE WALKING FROM ONE UNIT TO ANOTHER THE WALKWAY BETWEEN ENGINES WAS UNEVEN AND HE	#70-fracture	leg or foot	slipped, fell, stumbled, etc. due to irregular surface
5	EMPLOYEE WAS OPERATING WORK CAR 1244 OFF LAT 23. HE STEPPED OUT OF THE CAB AND TRIPPED OVER RAISED	#70-fracture	leg or foot	slipped, fell, stumbled, etc. due to irregular surface
6	EMPLOYEE WAS ATTEMPTING TO GET A CAN OF POP OUT OF THE WATER COOLER ON UNIT 2272. HE STEPPED ON THE DOOR STOP AND FELT DISCOMFORT IN HIS LEFT ANKLE.	#70-fracture	leg or foot	stepped on object
7	EMPLOYEE STATES WHILE MOUNTING LOCOMOTIVE HIS RIGHT FOOT SLIPPED ON TOP STEP CAUSING HIM TO FALL.	#70-fracture	torso	missed handhold, grabiron, step, etc.
8	WHILE INSPECTING LOCOMOTIVES, TRIPPED OVER THREE REAR END DEVICES LAYING ON FLOOR OF ENGINE CP 9018	#70-fracture	torso	ran into object/equipment
9	YARD FOREMAN GOT OFF THE LEADING END OF CAR IN SHOVING MOVEMENT SO THAT A YARD HELPER COULD GET ON THE LEADING END OF CAR FOR SWITCHING PURPOSES. THE YARD FOREMEN THEN ATTEMPTED TO GET ON THE THIRD CAR FROM THE LEADING END AND HIS FOOT MISSED THE	#80-amputation	leg or foot	missed handhold, grabiron, step, etc.
10	EMPLOYEE SLIPPED OR STEPPED (UNKNOWN WHICH) ON COUPLER SHANK AS CAR MOVED RESULTING IN A CRUSHED FOOT INJURY AND LOSS OF TOES ON LEFT FOOT. D-1: EMPLOYEE TESTED NEGATIVE EXCEPT FOR MORPHINE WHICH WAS ADMINISTERED IN EMERGENCY ROOM. NOT A FACTOR IN	#80-amputation	leg or foot	slack action, draft, compressive buff/coupling

Table 8: 109 Severe Injuries Containing Narrative, 1997 to 1999 (cont.)

#	Narrative	Type injury	Injury location	Event
1	WHILE CLOSING HOPPER DOOR BAR SLIPPED OUT AND EMPLOYEE TWISTED ANKLE	#70-fracture	leg or foot	70…unknown
2	EMPLOYEE WAS ATTEMPTING TO OPEN STUCK VESTIBULE DOOR OF CAR 893. HE PLACED HIS HAND ON THE DOOR FRAME FOR LEVERAGE, WHEN THE WINDOW TRIM ON THE DOOR CUT OFF THE TIP OF HIS FINGER.	#80-amputation	arm or hand	other (describe in narrative)
3	EMPLOYEE SEVERED TIP OF FINGER WHEN STICKING LOCOMOTIVE WINDOW OPENED SUDDENLY, CATCHING FINGER BETWEEN	#80-amputation	arm or hand	other (describe in narrative)
	BURNED, SPLASHED **6 of 109 (5.5 percent)**			
1	EMPLOYEE WAS TRYING TO RE-START FIRE IN AN OIL BURNING STEAM LOCOMOTIVE. THE FIRE IGNITED UNEXPECTEDLY WHEN OIL WAS FED INTO BURNER AND IGNITED UPON CONTACT OF HEATED FIRE BRICKS.	#40-electric shock/burn	head or face	other (describe in narrative)
2	TRYING TO RESTART ENGINE, HOT WATER SPLASHED OUT OF ENGINE AND ON TOP OF HEAD.	#50-other burns	head or face	defective/malfunctioning equipment
3	EMPLOYEE WAS TRYING TO THAW OUT FROZEN PCS WITH A FUSEE WHEN AIR BLEW OUT CAUSING THE FUSEE TO BURN	#50-other burns	head or face	defective/malfunctioning equipment
4	EMPLOYEE WAS SPRAYED WITH A BROWN LIQUID WHICH CAME OUT OF SOME OVERHEAD PIPES BESIDE 13 & 13 1/2 SW	#50-other burns	head or face	exposure to chemicals-external
5	EMPLOYEE WAS SPRAYED WITH A BROWN LIQUID WHICH CAME OUT OF SOME OVERHEAD PIPES BESIDE 13 & 13 1/2 SW	#50-other burns	head or face	exposure to chemicals-external
6	EMPLOYEE ALLEGES DURING THE ATTEMPT TO RESTART THE LOCOMOTIVE SOME HOT ASH FROM THE EXHAUST STACK FELL INTO HIS LEFT EYE.	#50-other burns	head or face	struck by object
	UNKNOWN **5 of 109 (4.6 percent)**			
1	CONDUCTOR LOST GRIP ON LADDER AND FELL, STRIKING BACK ON ADJACENT CAR	#70-fracture	torso	70...unknown
2	5L EVENT: FOOT SLIPPED OFF STEP 5M RESULT: STEP	#70-fracture	torso	other (describe in narrative)

Table 8: 109 Severe Injuries Containing Narrative, 1997 to 1999 (cont.)

#	Narrative	Type injury	Injury location	Event
3	EMPLOYEE ALLEGES AFTER CORNERING CARS HE ATTEMPTED TO SEPARATE THE CARS. IN DOING SO HE HELD ONTO THE HAND HOLD AND MADE THE MOVEMENT. THE STRESS ON THE METAL PULLED HIS HAND AGAINST ANOTHER PIECE OF STEEL AND AMPUTATED HIS LEFT WRIST.	#80-amputation	arm or hand	68...unknown
4	WHILE SHOVING CARS, IT APPEARS LEAD WHEEL ON SOO 60243 HAD RUN OVER RIGHT FOOT	#80-amputation	leg or foot	STRUCK by ON-TRACK EQUIPMENT
5	WHILE UNCOUPLING AN IRON LADLE FROM THE LOCOMOTIVE, THE EMPLOYEE ALLEGES THAT HE SLIPPED ON THE UNEVEN	#80-amputation	leg or foot	STRUCK by ON-TRACK EQUIPMENT
	UNCLASSIFIED, UNUSUAL CASES 18 of 109 (16.5 percent)			
1	ON TRAIN 90/LIGHT LENS	#50-other burns	head or face	struck by falling object
2	5K. BASKETBALL COURT.	#70-fracture	arm or hand	slipped, fell, stumbled, etc. due to irregular surface
3	TRAIN DERAILED AT SPEED OF 10 MPH ON A CURVE IN MOUNTAIN AREA. AFTER THE TRAIN STOPPED THE 4TH CAR IN THE TRAIN TURNED ONTO ITS SIDE. IN TURN THE NEXT 3 CARS TURNED OVER DERAILING AND TURNING OVER THE LOCOMOTIVE (STOPPED AT THE TIME). THE ENGINEER	#70-fracture	leg or foot	derailments
4	FOR ITEM 5L: EMPLOYEE BROKE ANKLE FOR ITEM 5M: NO APPLIANCE, TOOL, MACHINE, SURFACE, OR STRUCTURE CONTRIBUTED TO ACCIDENT.	#70-fracture	leg or foot	other (describe in narrative)
5	BS CONDUCTOR WAS STANDING BY ROAD CROSSING ENTERING TIME OF DAY IN HIS BOOK WORK ON USX PROPERTY AT NORTH END OF #2 SHIPPING AREA. AN EIGHTEEN WHEELER (TRACTOR TRAILER) WAS BACKING UP, DRIVER DID NOT SEE BS CONDUCTOR. TRAILER OF TRACTOR STRUCK EMPLOYEE	#70-fracture	leg or foot	pushed/shoved onto
6	CREW SWITCHING CARS WHEN THEY WERE NOTIFIED BY RADIO THAT A CUT OF CARS ON AN ADJACENT TRACK WAS ROL	#70-fracture	leg or foot	slipped, fell, stumbled, etc. due to irregular surface
7	BIBS	#70-fracture	leg or foot	slipped, fell, stumbled, etc. due to object
8	5N - CAUSE OF THE ACCIDENT WILL BE DETERMINED AT FORMAL INVESTIGATION CURRENTLY SET FOR END OF THIS YEAR. NO SPECIFIC DATE AVAILABLE AT THIS TIME.	#70-fracture	leg or foot	struck against object

Table 8: 109 Severe Injuries Containing Narrative, 1997 to 1999 (cont.)

#	Narrative	Type injury	Injury location	Event
9	EMPLOYEE WAS ATTEMPTING TO RELEASE HANDBRAKE ON MOVING TANK CAR. EMPLOYEE WAS STANDING ON THE END PLATFORM	#70-fracture	torso	defective/malfunctioning equipment
10	EMPLOYEE STATES: AFTER I TIED HANDBRAKE, I STARTED TO MOVE TO THE SIDE OF CAR. I DON'T KNOW IF MY FOOT	#70-fracture	torso	other (describe in narrative)
11	GATEWAY WESTERN BRAKEMAN ON YARD JOB Y216 WAS SPOTTING A RAILCAR AT INLAND CONTAINER. NOT AWARE OF	#70-fracture	torso	other (describe in narrative)
12	EMPLOYEE MOUNTED CAR TO RELEASE HAND BRAKE - EXTENDED RIGHT ARM (EXPOSING RIGHT RIB CAGE) TO RELEASE	#70-fracture	torso	struck against object
13	SWITCHING LOUISIANA PACIFIC, PULLING LOADS NOTICED A HANDBRAKE, SO I RELEASED IT AND WAS IN THE PROCESS	#70-fracture	torso	struck by object
14	WHILE DRIVING PERSONAL VEHICLE, EMPLOYEE LOST CONTROL, DUE TO INATTENTION.	#70-fracture	torso	sudden/unexpected movement of on-track equipment
15	5N: UNDETERMINED	#80-amputation	arm or hand	lost balance
16	5J PERSON WAS CHECKING OIL LEVEL ON OPERATING AUXILLIARY GENERATOR. 5L WHILE REPLACING OIL CAP, STUCK HAND IN FAN CUTTING 3 FINGERS ON LEFT HAND, MIDDLE FINGER AMPUTATED. 5M NO TOOLS INVOLVED. EMPLOYEE RETURNED TO REGULAR DUTY 3/28/00.	#80-amputation	arm or hand	other (describe in narrative)
17	5L) HAVE NOT BEEN ABLE TO OBTAIN STATEMENT FROM INJURIED EMPLOYEE.	#80-amputation	leg or foot	other (describe in narrative)
18	BRAKEMAN WORKING SWITCHING CARS IN SWITCHING YARD. EMPLOYEE IS IN HOSPITAL AND HAS NOT BEEN INTERVIEWED AS OF CLOSING OCTOBER REPORTS, SO THE DETAILS OF WHAT HAPPENED ARE STILL UNDER INVESTIGATION.	#80-amputation	leg or foot	other (describe in narrative)

APPENDIX A

FORM F 6180.55A

DEPARTMENT OF TRANSPORTATION

FEDERAL RAILROAD ADMINISTRATION (FRA)

RAILROAD INJURY AND ILLNESS SUMMARY

(Continuation Sheet)

SHEET ____ OF ____

OMB Approval No.: 2130-0500

1. Name of Reporting Railroad	2. Alphabetic Code	3. Report Month	4. Report Year

5a. Accident/Injury Number	**5b.** Day	**5c.** Time of Day	**5d.** County	**5e.** State	**5f.** Type Person/ Job Code	**5g.** Age

5h. Drug/ Alcohol Test	**5i.** Injury Illness Code	**5j.** Physical Act	**5k.** Location	**5l.** Event	**5m.** Result	**5n.** Cause	**5o.** Number of Days Away From Work	**5p.** Number of Days Restricted	**5q.** Exposure to Hazmat	**5r.** Termination or Permanent Transfer? (y/n)

5s. Narrative (Up to 250 Characters)

5a. Accident/Injury Number	**5b.** Day	**5c.** Time of Day	**5d.** County	**5e.** State	**5f.** Type Person/ Job Code	**5g.** Age

5h. Drug/ Alcohol Test	**5i.** Injury Illness Code	**5j.** Physical Act	**5k.** Location	**5l.** Event	**5m.** Result	**5n.** Cause	**5o.** Number of Days Away From Work	**5p.** Number of Days Restricted	**5q.** Exposure to Hazmat	**5r.** Termination or Permanent Transfer? (y/n)

5s. Narrative (Up to 250 Characters)

5a. Accident/Injury Number	**5b.** Day	**5c.** Time of Day	**5d.** County	**5e.** State	**5f.** Type Person/ Job Code	**5g.** Age

5h. Drug/ Alcohol Test	**5i.** Injury Illness Code	**5j.** Physical Act	**5k.** Location	**5l.** Event	**5m.** Result	**5n.** Cause	**5o.** Number of Days Away From Work	**5p.** Number of Days Restricted	**5q.** Exposure to Hazmat	**5r.** Termination or Permanent Transfer? (y/n)

5s. Narrative (Up to 250 Characters)

FORM FRA F 6180.55a – Continued

D. INSTRUCTIONS FOR COMPLETING FORM FRA F 6180.55A (Continuation)

Item Instruction

1. Name of Reporting Railroad
Enter the full name of the reporting railroad.

2. Alphabetic Code
Enter the reporting railroad's code found in Appendix A.

3. Report Month
Enter the month covered by this report.

4. Report Year
Enter the year covered by this report.

5a. Accident/Injury Number
Enter the identifying number assigned to the accident/incident causing the casualty. If multiple casualties resulted from a single event, each casualty must have exactly the same report number. If the casualty was a result of a rail equipment accident/incident or a highway-rail crossing impact, the entry must be the same as that shown on the other forms completed for the accident/incident.

5b. Day
Enter the day of the accident/incident. Use number day of the month, e.g., 01-31.

5c. Time of Day
Enter the time of the accident/incident including "am" or "pm". Do not use military time.

5d. County
Enter the County/Parish in which the accident/incident occurred.

5e. State
Identify the State in which the casualty occurred using the appropriate code found in Appendix B.

FORM FRA F 6180.55a – Continued

5f. Type Person/Job Code

Identify the type of person whose injury or illness is being reported by using the following codes (refer to classification of persons found in the definitions in Chapter 2): A – Worker on Duty—Employee; B – Employee not on Duty; C – Passengers on Trains; D – Nontrespassers—On Railroad Property; E – Trespassers; F – Worker on Duty—Contractor; G – Contractor—Other; H – Worker on Duty—Volunteer; I – Volunteer-Other; and J – Nontrespassers—Off Railroad Property.

If the report is for a "Worker on Duty", i.e., type person/job codes "A", "F", or "H", or the person is an "Employee not on duty", type person code "B", you must enter the code from Appendix D that best identifies the individual's occupation/responsibilities.

5g. Age

Enter the age of person whose injury or illness is being reported.

5h. Drug/Alcohol Test

If any employee was tested for alcohol use in connection with this accident, enter "A-" followed by the number of positive tests. If any employee was tested for drug use in connection with this accident, enter "D-" followed by the number of positive tests. If there were positive tests, but impairment is not reported as a cause of the accident, then provide a brief explanation in the narrative of the basis for this determination. The narrative is to be used to provide additional clarification, particularly in instances where there are positive test results, but impairment was not determined to have been causal.

You are required to identify all accidents/incidents where testing was performed. The recording of this data on a record does not mean that the injured person was the individual tested. This situation could occur when the employee(s) tested for the use of these substances was not harmed in the accident/incident. Under these circumstances, since there was no injury to the tested employee, there would be no entry for this employee on the Form FRA F 6180.55a. Therefore, it is critical to record the information concerning tests on all reports filed in connection with the accident/incident.

This situation could arise, for example, when a non-employee, e.g., a passenger, sustains the only reportable injury in an incident that resulted in testing of employee(s). In order to identify the connection between the injury being reported and possible alcohol or drug use by an employee, it is mandatory that the information concerning the alcohol or drug use be recorded on the reports made in connection with the accident/incident.

5i. Injury/Illness Code

Select from the codes in Appendix E the combination that best describes the condition being reported.

FORM FRA F 6180.55a – Continued

5j. Physical Act
From Appendix F, select the code which best describes what the injured person was doing just before the injury occurred. If the code you have selected does not sufficiently describe the "Physical Act", provide further description in the Narrative.

5k. Location The location is comprised of three sets of codes as described below.

PART I: Was the person on the right-of-way, off the right-of-way, or on on-track equipment?

Identify the appropriate category of where the casualty occurred, and enter the appropriate code listed in Appendix F. When using "Other", a narrative must be provided in item 5s.

PART II: If the casualty involved on-track equipment, select the code that best describes the type of on-track equipment involved, and enter appropriate code listed in Appendix F. When using "Other", a narrative must be provided in item 5s.

PART III: Select the appropriate code that best identifies the location of the casualty being reported listed in Appendix F. When using "Other" a narrative must be provided in item 5s.

5l. Event
From Appendix F, select the code which best describes the event that caused the injury. If the code selected does not sufficiently describe the "Event", provide further description in the Narrative.

5m. Result
From Appendix F, select the code which best describes additional information about the tools, machinery, appliances, structures, surfaces, etc., associated with the injury. You should try to use codes that provide additional information. For example, if the event code identified using "hand tools", the entry in this block could be used to identify that the tool was a "gripping" type tool. If the code does not sufficiently describe the "Result", provide further description in the Narrative.

5n. Cause
From Appendix F, select the code which best describes what caused the event entered in item 5l. If the code you have selected does not sufficiently describe the "Cause", provide further description in the Narrative.

FORM FRA F 6180.55a – Continued

5o. Number of Days Away From Work
If the person reported is an employee of the reporting railroad, enter the number of days that the employee was away from work because of the injury or illness. If there were no such days, or a fatality is being reported, enter "0". If the person is not a railroad employee, enter "N/A".

5p. Number of Days Restricted
If the person being reported is an employee of the reporting railroad, enter the number of days that the employee was restricted from work due to the injury or illness. If there were no such days, or a fatality is being reported, enter "0". If the person is not a railroad employee, enter "N/A".

5q. Exposure to Hazmat
Enter "Y" (for "yes") if an exposure to hazardous material caused, or was a contributing factor to, the condition being reported for this individual.

5r. Termination or Permanent Transfer
If the employee was suspended from employment or permanently transferred to a new position, enter "Y"; otherwise, enter "N". For non-employees, the block is to be left blank.

5s. Narrative
The railroad can further explain unusual circumstances surrounding a worker's injury or illness using up to 250 characters. Completion of this narrative is mandatory for the reporting railroad unless the injury or illness can be adequately described using all other entries (information blocks) on the form. **Do not record personal identifiers, e.g., names, Social Security Numbers, or payroll identifications.**

Railroad Injury and Illness Summary Data File Structure
And Field Input Specifications

	FIELD NAME	FILE POSITION	FIELD TYPE	FIELD LENGTH	DEFINITION	BLOCK # ON FORM 6180.55a	CONVERSION
√	ivr	1 - 2	A/N	2	year of incident	4	
√	imo	3 – 4	A/N	2	month of incident	3	
√	railroad	5 – 8	A	4	railroad code	2	
√	incdtno	9 – 18	A/N	10	railroad assigned number	5a	
√	typpers	19	A/N	1	type of person whose injury illness is being reported A= worker on duty-employee B= employee not on duty C= passenger on train D= nontrespassers-on railroad property E= trespassers F= worker on duty-contractor G= contractor-other H= worker on duty-volunteer I= volunteer-other J= nontrespassers-off railroad property	5f	
√	jobcode	20 – 22	A/N	3	employee job occupation codes **(refer to Appendix D)**	5f	
√	natinj	23 – 24	A/N	2	nature of injury codes **(refer to Appendix E)**	5i	
√	location	25	A/N	1	location of injury on body **(refer to Appendix E)**	5i	
	ifatal	26	A/N	1	for injury specific location for illness indicator of death within a year **(refer to Appendix F)**	5i	
	occode	27 – 29	A/N	3	casualty occurrence code		**old = zeros** **new = data**
	tcode	30	A/N	1	indicates equipment movement		**old = zeros** **new = data**
	age	31 – 32	A/N	2	age of person being reported	5g	
	daysabs	33 – 35	N	3	employee # of days away from work	5o	
	daysres	36 – 38	N	3	employee # of days of restricted activity	5p	
	dummy	39	A/N	1	blank data expansion field		
√	state	40 – 41	A/N	2	GSA State Code	5e	
	typrr	42 – 43	A/N	2	type railroad – ICC categories. 1st position indicates class 1, 2, or 3 RR		
	dummy1	44 – 47	A/N	4	blank data expansion field		
	region	48	A/N	1	FRA designated region		
	dummy2	49	A/N	1	blank data expansion field		
	narrlen	50 - 53	N	4	length of narrative		**old = zeros** **new = data**

	FIELD NAME	FILE POSITION	FIELD TYPE	FIELD LENGTH	DEFINITION	BLOCK # ON FORM 6180.55a	CONVERSION
	casfatal	54	A/N	1	fatality: N=no Y=yes		
	cas57	55	A/N	1	F6180-57 filed: N=no Y=yes		
	cas54	56	A/N	1	F6180-54 filed: N=no Y=yes		
	dummy3	57	A/N	1	blank data expansion field		
√	day	58 – 59	A/N	2	day of incident	5b	old=blank new=data
	year4	60 – 63	A/N	4	4 digit year of incident	4	old=zeros new=data
√	timehr	64 – 65	N	2	hour of incident	5c	old=zeros new=data
√	timemin	66 – 67	N	2	minute of incident	5c	old=zeros new=data
√	ampm	68 – 69	A/N	2	am or pm	5c	old=blank new=data
√	county	70 – 89	A/N	20	GSA County name	5d	old=blank new=data
	cntycd	90 – 92	A/N	3	GSA County code		old=blank new=data
	stenty	93 – 98	A/N	6	GSA State and County code		old=blank new=data
	alcohol	99 – 100	A/N	2	No. of positive alcohol tests	5h	result of conversion formula
	drug	101 – 102	A/N	2	No. of positive drug tests	5h	result of conversion formula
√	phyact	103 – 104	A/N	2	code to describe actions just before injury **(refer to Appendix F)**	5j	old=blank new=data
√	loca	105 – 106	A/N	2	code to identify general location of person at time of injury **(refer to Appendix F)**	5k	old=blank new=data
√	locb	107 – 108	A/N	2	code to identify on-track equipment involved **(refer to Appendix F)**	5k	old=blank new=data
√	locc	109 – 110	A/N	2	code to identify specific location of person at time of injury **(refer to Appendix F)**	5k	old=blank new=data
√	event	111 – 112	A/N	2	code to describe event which caused injury **(refer to Appendix F)**	5l	old=blank new=data
√	tools	113 – 114	A/N	2	code to describe additional information about injury **(refer to Appendix F)**	5m	old=blank new=data

	FIELD NAME	FILE POSITION	FIELD TYPE	FIELD LENGTH	DEFINITION	BLOCK # ON FORM 6180.55a	CONVERSION
	hzmexpos	117	A/N	1	Hazmat exposure N=no Y=yes blank = unknown	5q	old=blank new=data
	terminat	118	A/N	1	Employee suspension or permanent transfer N=no Y=yes blank = unknown	5r	old=blank new=data
	narrl	119 – 218	A/N	100	narrative	5s	old=blank new=data
	narr2	219-318	A/N	100	narrative	5s	old=blank new=data
	narr3	319 – 368	A/N	50	narrative	5s	old=blank new=data
√	injcaus	115 - 116	A/N	2	Code to describe what probably caused the injury **(refer to Appendix F)**	5n	old=blank new=data

APPENDIX B

FORM 6180.55A DATA FILE STRUCTURE

Railroad Injury and Illness Summary Data File Structure and Field Input Specifications

	FIELD NAME	FILE POSITION	FIELD TYPE	FIELD LENGTH	DEFINITION	BLOCK# ON FORM 6180.55a	CONVERSION
/	**iyr**	**1 - 2**	**A/N**	**2**	year of incident	4	
/	**imo**	**3 - 4**	**A/N**	**2**	month of incident	3	
/	**railroad**	**5 - 8**	**A**	**4**	**railroad code**	2	
/	**incdtno**	**9- 18**	**A/N**	**10**	railroad assigned number	5a	
/	**typpers**	**19**	**A/N**	**1**	type of person whose injury/illness is being reported: A= worker on duty-employee B= employee not on duty C= passenger on train D= nontrespassers-on railroad property E= trespassers F= worker on duty-contractor G= contractor-other H= worker on duty-volunteer I= volunteer-other J= nontrespassers-off railroad property	5f	
/	**jobcode**	**20 - 22**	**A/N**	**3**	employee job occupation codes **(refer to Appendix D)**	5f	
/	**natinj**	**23 - 24**	**A/N**	**2**	nature of injury code **(refer to Appendix E)**	5i	
/	**location**	**25**	**A/N**	**1**	location of injury on body **(refer to Appendix E)**	5i	
	ifatal	**26**	**A/N**	**1**	for injury.: specific location for illness: indicator of death within a year **(refer to Appendix E)**	5i	
	occode	**27 - 29**	**A/N**	**3**	**casualty occurrance code**		**old = data** **new = blank**
	tcode	**30**	**A/N**	**1**	indicates equipment movement		**old = data** **new = blank**
	age	**31 - 32**	**A/N**	**2**	age of person being reported	5g	
	daysabs	**33 - 35**	**N**	**3**	employee # of days away from work	5o	
	daysres	**36 - 38**	**N**	**3**	employee # of days of restricted activity	5p	
	dummy	**39**	**A/N**	**1**	blank data expansion field		
/	**state**	**40 - 41**	**A/N**	**2**	**GSA State code**	5e	
	typrr	**42 - 43**	**A/N**	**2**	type railroad - **ICC** categories; 1st position indicates class 1,2,or 3 RR		
	dummy1	**44 - 47**	**A/N**	**4**	blank data expansion field		

Railroad Injury and Illness Summary Data File Structure and Field Input Specifications

	FIELD NAME	FILE POSITION	FIELD TYPE	FIELD LENGTH	DEFINITION	BLOCK# ON FORM 6180.55a	CONVERSION
	region	48	A/N	1	FRA designated region		
	dummy2	49	A/N	1	blank data expansion field		
	narrlen	50 - 53	N	4	length of narrative		old = zeros new = data
	casfatal	54	A/N	1	fatality: N=no Y=yes		
	cas57	55	A/N	1	**F6180-57** filed: N=no Y=yes		
	cas54	56	A/N	1	**F6180-54** filed: N=no Y=yes		
	dummy3	57	A/N	1	blank data expansion field		
/	day	58 - 59	A/N	2	day of incident	5b	old =blank new =data
	year4	60 - 63	A/N	4	4 digit year of incident	4	
/	timehr	64 - 65	N	2	hour of incident	5c	old =zeros new =data
/	timemin	66 - 67	N	2	minute of incident	5c	old =zeros new =data
/	ampm	68 - 69	A/N	2	am or pm	5c	old =blank new =data
/	county	70 - 89	A/N	20	**GSA County name**	5d	old =blank new =data
	cntycd	90 - 92	A/N	3	**GSA County code**		old =blank new =data
	stcnty	93 - 98	A/N	6	**GSA State** and **County** code		old =blank new =data
	alcohol	99 - 100	A/N	2	No. of positive alcohol tests	5h	result of conversion formula
	drug	101 - 102	A/N	2	No.of positive drug tests	5h	result of conversion formula
/	phyact	103 - 104	A/N	2	code to describe actions just before injury **(refer to Appendix F)**	5j	old =blank new =data
/	loca	105 - 106	A/N	2	code to identify general location of person at time of injury **(refer to Appendix F)**	5k	old =blank new =data
/	locb	107 - 108	A/N	2	code to identify on-track equipment involved **(refer to Appendix F)**	5k	old =blank new =data
/	locc	109 - 110	A/N	2	code to identify specific location of person at time of injury **(refer to Appendix F)**	5k	old =blank new =data
/	event	111 - 112	A/N	2	code which describes event which caused injury **(refer to Appendix F)**	5l	old =blank new =data
/	tools	113 - 114	A/N	2	code to describe additional information about injury **(refer to Appendix F)**	5m	old =blank new =data
/	injcaus	115 - 116	A/N	2	code to describe what probably caused the injury **(refer to Appendix F)**	5n	old =blank new =data

Railroad Injury and Illness Summary Data File Structure and Field Input Specifications

FIELD NAME	FILE POSITION	FIELD TYPE	FIELD LENGTH	DEFINITION	BLOCK# ON FORM 6180.55a	CONVERSION
hzmexpos	**117**	**A/N**	**1**	hazmat exposure: Y=yes N=no blank=unknown	5q	**old =blank** **new =data**
terminat	**118**	**A/N**	**1**	employee suspension or permanent transfer: Y=yes N=no blank=unknown	5r	**old =blank** **new =data**
narr1	**119 - 218**	**A/N**	**100**	narrative	5s	**old =blank** **new =data**
narr2	**219 - 318**	**A/N**	**100**	narrative	5s	**old =blank** **new =data**
narr3	**319 - 368**	**A/N**	**50**	narrative	5s	**old =blank** **new =data**