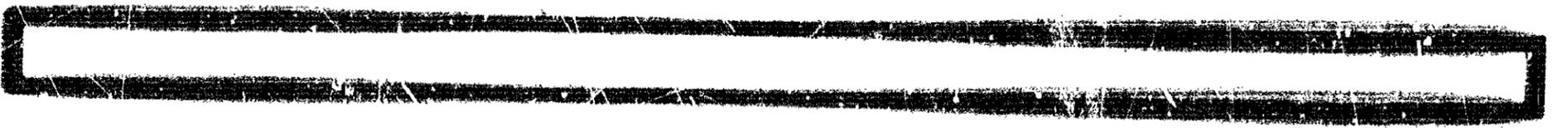
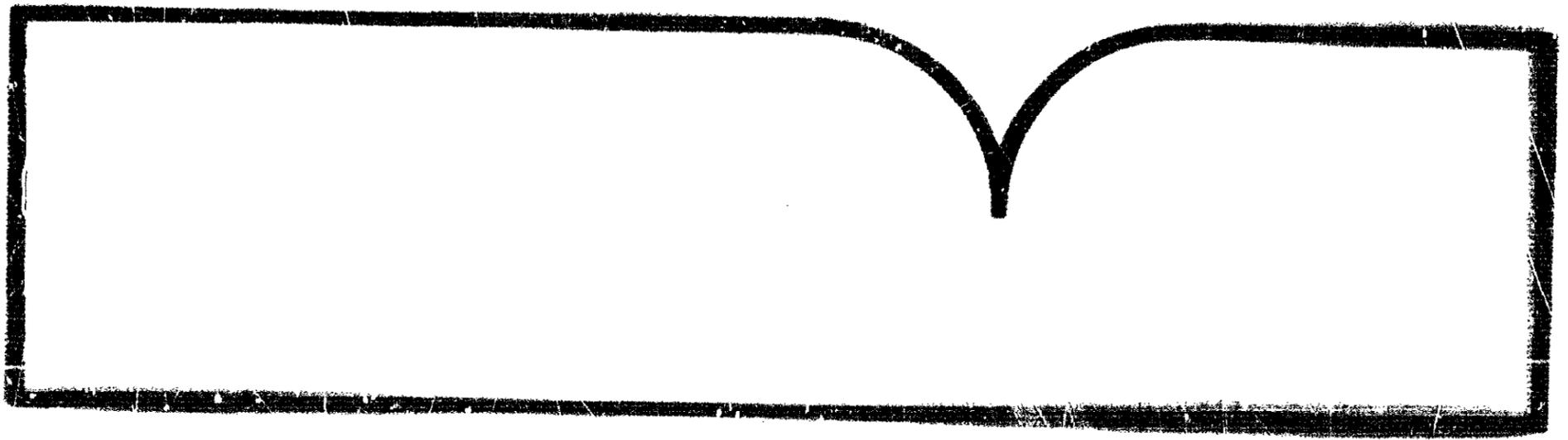


PB86-916 203

Highway Accident Report
Tractor-Semitrailer/Station Wagon
Runaway, Collision, and Fire
Van Buren, Arkansas, June 21, 1985

(U.S.) National Transportation Safety Board
Washington, DC

8 Aug 86



U.S. Department of Commerce
National Transportation Safety Board
Washington, DC

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15. Supplementary Notes					
<p>16. Abstract About 7:51 p.m. on June 21, 1985, a privately-owned, 70,000-pound tractor-semitrailer operating in interstate commerce under a trip-lease agreement with C. Maxwell Trucking Company, Inc., lost control while descending a steep 3,439-foot-grade on southbound State Route 59 in downtown Van Buren, Arkansas. The truck collided with the rear of and overrode a station wagon which was stopped at the bottom of the hill. The truck and the station wagon continued 84 feet forward, across an intersection, up a curb, and through a guard rail. They then traveled another 22 feet and struck two commercial buildings. A fire ensued and engulfed both vehicles and three buildings. Both occupants in the truck and the seven occupants in the station wagon were fatally injured.</p> <p>The National Transportation Safety Board determines that the probable cause of this accident was the failure of the truckdriver to comply with regulatory signs and to properly use limited service brakes and transmission for speed control purposes, which permitted the tractor-semitrailer to accelerate to a high speed while descending the steep grade on State Route 59. Contributing to the accident were the improper adjustment of the vehicle's service brakes due to inadequate vehicle maintenance; the truckdriver's lack of experience, maturity, and training required for interstate truckdrivers; and the absence of an adequate surveillance and enforcement program for the trucking system.</p>					
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**NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C. 20594**

HIGHWAY ACCIDENT REPORT

Adopted: August 8, 1986

**TRACTOR-SEMITRAILER/STATION WAGON
RUNAWAY, COLLISION, AND FIRE
VAN BUREN, ARKANSAS
JUNE 21, 1985**

SYNOPSIS

About 7:51 p.m. on June 21, 1985, a privately-owned, 70,000-pound tractor-semitrailer operating in interstate commerce under a trip-lease agreement with C. Maxwell Trucking Company, Inc., lost control while descending a steep 3,439-foot grade on southbound State Route 59 in downtown Van Buren, Arkansas. The truck collided with the rear of and overrode a station wagon which was stopped at the bottom of the hill. The truck and the station wagon continued 84 feet forward, across an intersection, up a curb, and through a guardrail. They then traveled another 22 feet and struck two commercial buildings. A fire ensued and engulfed both vehicles and three buildings. Both occupants in the truck and the seven occupants in the station wagon were fatally injured.

The National Transportation Safety Board determines that the probable cause of this accident was the failure of the truckdriver to comply with regulatory signs and to properly use limited service brakes and transmission for speed control purposes, which permitted the tractor-semitrailer to accelerate to a high speed while descending the steep grade on State Route 59. Contributing to the accident were the improper adjustment of the vehicle's service brakes due to inadequate vehicle maintenance; the truckdriver's lack of experience, maturity, and training required for interstate truckdrivers; and the absence of an adequate surveillance and enforcement program for the trucking system.

INVESTIGATION

The Accident

Between 4 and 5 p.m. on June 19, 1985, the driver of a 70,000-pound tractor-semitrailer containing a load of meat departed Council Bluffs, Iowa. The truck was destined for Dallas, Texas, with an intermediate stop scheduled at the Gerber Products Company (Gerber) at Fort Smith, Arkansas.

About 2 p.m. on June 21, 1985, the truckdriver contacted Gerber for directions. He stated that he was in Oklahoma, about 30 minutes away, and was eastbound on Interstate 40 (I-40) en route to the company. The foreman at Gerber told the truckdriver to "Proceed east on I-40 and take the Roland, Oklahoma/Fort Smith, Arkansas, exit onto highway 64E and cross the bridge into Fort Smith." The truckdriver proceeded beyond the highway 64E exit, contrary to Gerber's instruction. (See figure 1.)

A witness reported that the accident truck traveled east on I-40, passed a regulatory sign which stated "59 South Closed to Trucks 1/2 Mile," and turned right onto the exit ramp leading to State Route (SR) 59. At the end of the exit ramp, the truckdriver turned right onto southbound SR 59 and proceeded about 1.2 miles (passing two "No Truck"

ARKANSAS

A) AREA WHERE TRACTOR-SEMITRAILER DRIVER TELEPHONED GERBER PRODUCTS ON I-40 EAST

B) EXIT 64E FROM I-40 WHERE TRACTOR-SEMITRAILER WAS INSTRUCTED TO ENTER FORT SMITH. THE TRUCK DRIVER PASSED THE 64E EXIT AND CONTINUED EAST TO S.R. 59

C) CRASH SITE ON S.R. 59 IN DOWNTOWN VAN BUREN, ARKANSAS

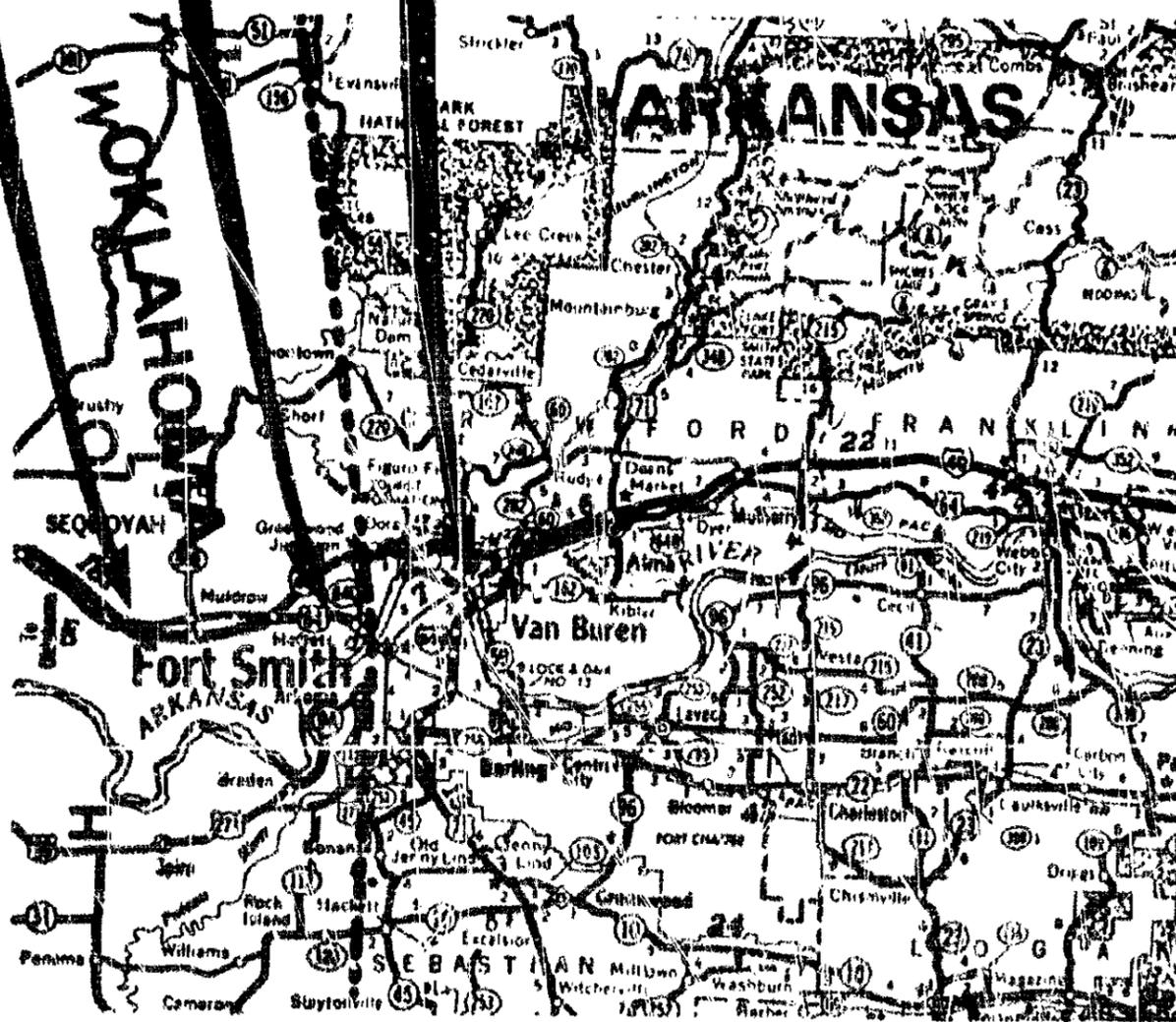


Figure 1.--Fort Smith, Arkansas, area.

regulatory signs located on each side of the highway and an advance warning sign that depicted a silhouette of a truck on an incline), before beginning a 3,439-foot descent on a hill with a 30-mph speed limit leading into Van Buren, Arkansas. The roadway was dry, the weather was clear, and it was about one-half hour before sunset.

Several witnesses who observed the truck as it descended the hill stated they heard noises which sounded like "grinding gears" from the tractor. They said that the truck had accelerated to between 50 and 60 mph by the time it reached the railroad track near the bottom of the hill. (See figures 2 and 3.) A witness also stated that the truck vaulted at the railroad tracks, traveled airborne, and struck the rear of and overrode a station wagon standing at a stop sign in the right lane of southbound SR 59 at the intersection of SR 59 and Main Street. The truck and the station wagon continued 84 feet forward across the intersection, over a curb, and through a guardrail. They then traveled another 22 feet across a sidewalk and penetrated the front of a hardware store, traveled through a firewall, and came to rest in a clothing store. A fire ensued and engulfed the truck, the station wagon, the hardware store, the clothing store, and an adjacent drug store.

The accident occurred about 7:51 p.m., and the Van Buren Fire Department arrived onscene at 7:58 p.m. Additional personnel were provided by fire and rescue companies from the Fort Smith, Arkansas, area. After the fire was extinguished 8 hours later, about 3 a.m., the driver and his wife, the other occupant of the truck, and the seven station wagon occupants were found under the building debris. The Crawford County coroner pronounced all nine victims dead at the scene.

Injuries to Persons

<u>Injuries</u>	<u>Truck- Semi-trailer</u>	<u>Station Wagon</u>	<u>Total</u>
Fatal	2	7	9
Non-fatal	0	0	0
Minor/None	0	0	0
Total	2	7	9

Driver Information

Truckdriver.--The 20-year-old truckdriver held a valid New York State operator's license which authorized him to operate passenger cars only. According to family members, he had driven farm equipment and tractor-semitrailers for 3 years but had never received any formal truckdriver training. Family members stated the driver was on the road most of the time, that he had no fixed address, and that he had not been engaged in interstate commercial driving during the 10 days before the accident. They indicated the driver was in good health, was a sound sleeper, was not prone to taking drugs, and drank little alcohol.

During the 14 hours between his departure from Council Bluffs and the accident, the driver traveled about 280 miles. No information was available about the driver's rest or eating stops before he stopped to call Gerber or about his activities after the call. No information was found to indicate that the driver was familiar with the roadway near the crash site.

Safety Board investigators checked 22 States in which the truckdriver was known to have operated and documented that, at the time of the accident, he had 6 outstanding traffic citations, 4 operator citations, and 27 equipment citations issued by

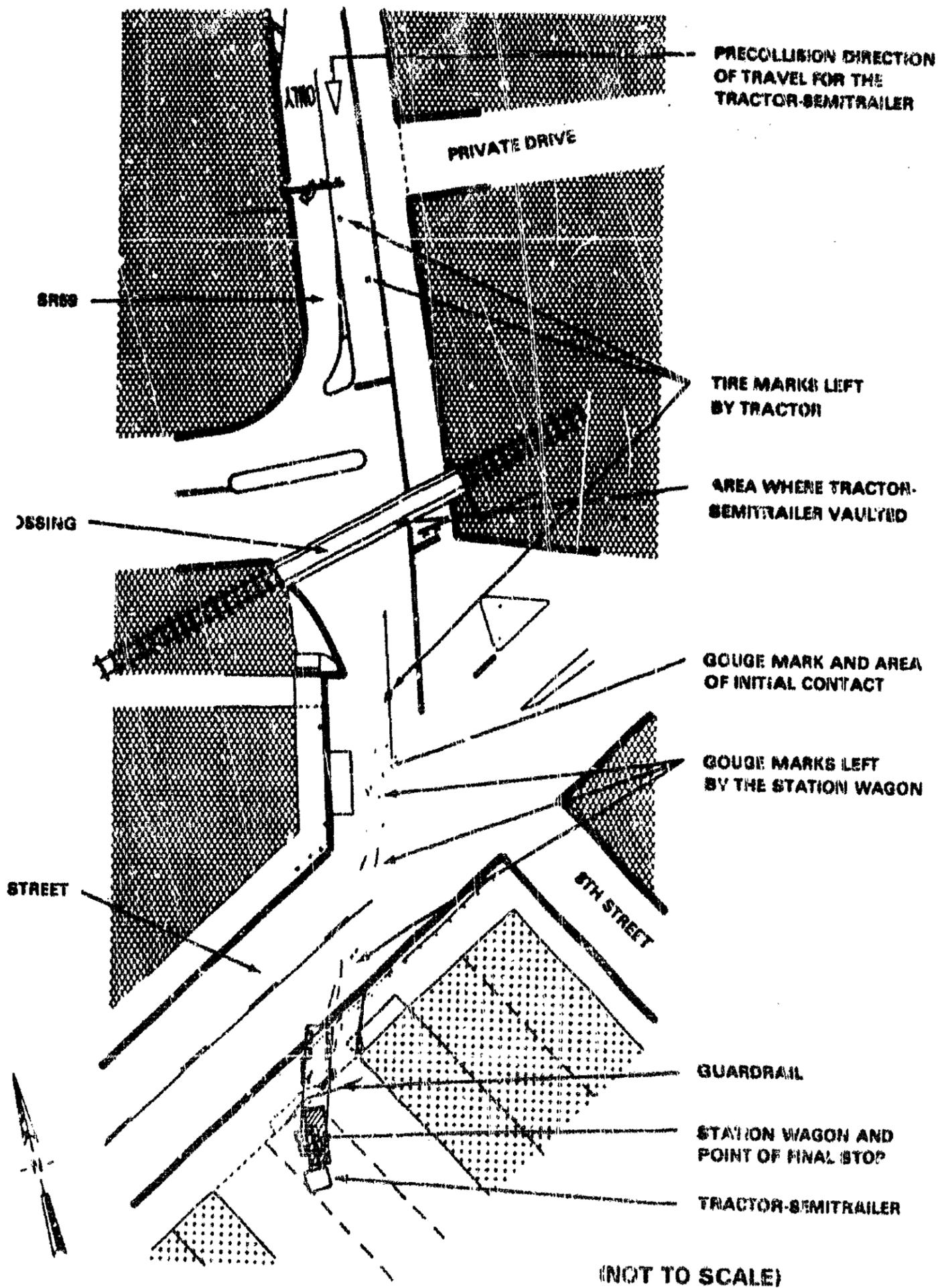
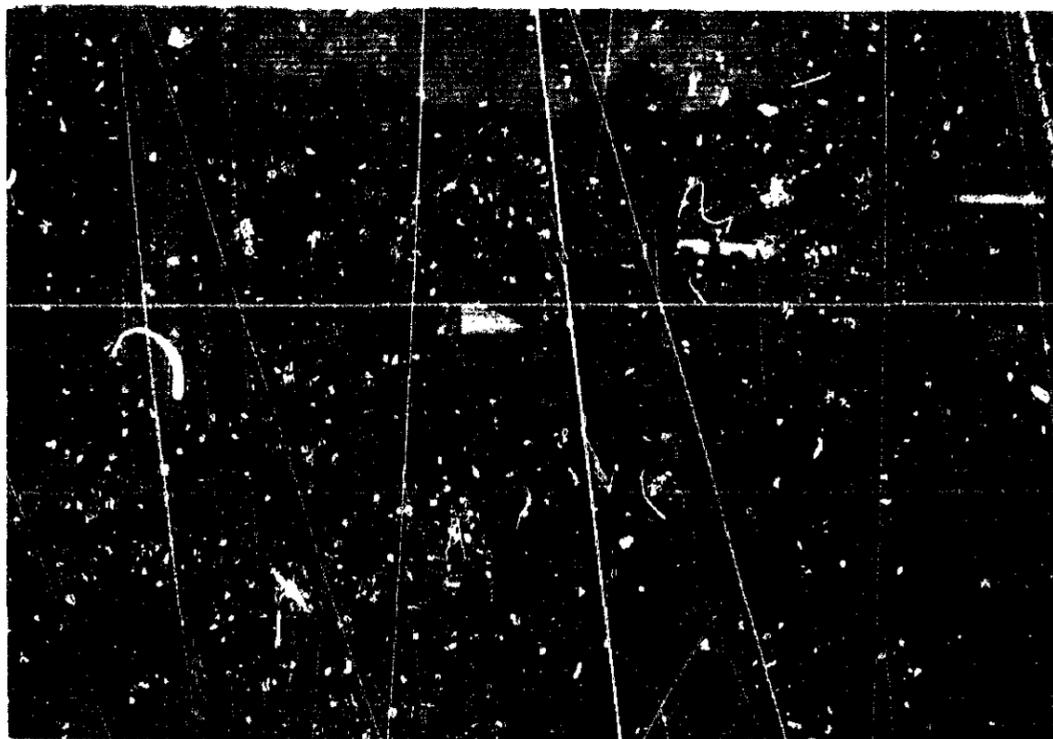


Figure 2.—Accident scene diagram.



View of SR 59 looking north from impact area.



Areas of impact with station wagon and buildings.

Figure 3.--Photographs of the crash site.

four States (Arizona, California, Missouri, and Oregon). The charges ranged from possession of stolen license plates on the semitrailer to defective brakes and speeding. (See tables 1 and 2.) In addition, in November 1984, California issued a "sale and seizure" order on the accident semitrailer resulting from the failure to pay road use tax in that State. In Iowa the driver was wanted on a felony warrant charging him with "statutory burglary," which was unrelated to the operation of the truck.

The truckdriver failed to appear in court or pay fines for these citations and consequently was adjudicated in his absence (tried in absentia).

Table 1.--Truckdriver's outstanding traffic citations in the States of Arizona, California, and Oregon.

<u>Enforcement Agency</u>	<u>Citation</u>	<u>Action Taken</u>	<u>Date of Issue</u>
California Highway Patrol	1. Speeding	Citation issued	3/21/85
Arizona Department of Public Safety	2. Speeding	Citation issued	3/25/85
	3. No driver status report		"
	*4. Defective brakes (leaking connection)		"
	5. Torn mudflaps		"
Oregon Weightmaster	6. Display of stolen California Commercial Vehicle Safety Alliance (CVSA) permit	Citation issued	4/1/85

* Denotes out-of-service violation

Notes: All of the citations which the truck driver received were committed while he was operating the accident tractor-semitrailer.

Table 2.--Citation issued as a result of Missouri motor carrier safety inspection of accident truck and driver on May 12, 1985

Citations

1. Seatbelts - not worn
2. Operator not qualified for interstate, 20-years-old
3. Driver not qualified, operator's license only
4. Driver Status Report (Log) 24 hours behind
5. No fire extinguisher
6. Windshield broken/cracked (both sides)
7. Rear relay valve not secure to vehicle
8. Both front leaf suspensions (drive) showing signs of shift
8. Center front shackles on suspension rubbing into bracket
10. No stopped vehicle warning devices
- *11. No stop lights on trailer
12. Left turn signal inoperable
13. Left 4-way signal inoperable
14. Right front trailer brake out of adjustment

15. Right front trailer brake linings (excessive wear, missing rivet heads)
16. Right rear inside trailer tire showing excessive wear
17. Trailer not licensed/license plates stolen
18. Markings displayed for another carrier - no Missouri PSC Authority
19. Right front headlight (low beam) inoperable
20. Disqualified driver. Co-Driver (father) license suspended in New Mexico, revoked license in California and Oregon. Warrants on file in Arizona
21. Defective exhaust
22. Overweight 760 lbs. on drive tandems
23. Left front brake drum oil on rim
24. Hoses to brake chambers chafing
25. Two of five bolts missing from right center spring shackle
26. Vehicle could not restart under its own power
27. Stolen 1985 CVSA sticker
28. No tractor registration
29. Defective lights
30. No fuel license permit
- *31. Leaking fuel tank

*Vehicle declared out-of-service for these defects.

On May 12, 1985, the Missouri State Highway Patrol conducted a safety inspection of the accident truckdriver, his father (the codriver), and the accident truck and cited the driver and his father for 4 operator violations and 27 defective equipment violations. (See table 2.) The truck-tractor was declared "out-of-service" ^{1/} for a leaking fuel tank, and the semitrailer was declared out-of-service for inoperative stop lamps, both units were parked at the inspection site. The accident truckdriver was arrested for not having a tractor registration or a fuel license permit and for having defective lights and a leaking fuel tank. The accident truckdriver posted bond for the four violations and was released. Although the driver was underage he could not be "declared out-of-service" on the basis of his age. The 21-year-old age requirement is not part of the current BMCS "out-of-service" criteria. The father (codriver) was not declared "out-of-service" for having revoked or suspended driving privileges in California, New Mexico, and Oregon, although this information was known at the time of the inspection because a computer check of the driver's license was made. The Safety Board was unable to determine how or when the truck tractor and semitrailer were removed from the inspection site. Current Federal and State driver out-of-service criteria limit a motor carrier safety inspector's authority to declare a driver out of service in situations where the driver is found to have violated the hours of service requirement or where a driver fails to properly maintain a current log of his/her duty status.

1/ Out of service as defined in the Federal Motor Carrier Safety Regulations:

Motor vehicles declared "out of service."

(1) Authorized personnel shall declare and mark "out of service" any motor vehicle which by reason of its mechanical condition or loading would likely cause an accident or a breakdown. An "Out of Service Vehicle" sticker shall be used to mark vehicles "out of service."

(a) Authority to declare drivers out of service.

Every special agent of the Federal Highway Administration (as defined in Appendix B to this subchapter) is authorized to declare a driver out of service and to notify the motor carrier of that declaration, upon finding at the time and place of examination that the driver has violated the out of service criteria.

Station Wagon Driver.--The 24-year-old female driver of the station wagon held an Arkansas operator's license. She lived near the area and was familiar with the roadway at the accident site. There was no evidence to indicate that the driver was under the influence of alcohol or drugs, and family members indicated that she was in good health.

Vehicle Information and Damage

Tractor-Semitrailer.--The truckdriver's father stated that he owned the 1971 White-Freightliner, 3-axle, cab-over-engine tractor and the 1975 Utility refrigerated semitrailer which were involved in the accident. Both units were equipped with air-mechanical service brakes and radial tires. The tractor had a 5-speed manual transmission and a 3-speed rear axle. At the time of the accident, the odometer indicated 243,188 miles and the loaded truck weighed about 70,000 pounds. (See figure 4.) No records or other documentation were found to indicate what maintenance had been performed on the accident tractor-semitrailer.

The tractor's front axle was not equipped nor was it required to be equipped with brakes. Tractors produced before 1980 are not required to be equipped with brakes on the front (steering) axle. National Highway Traffic Safety Administration (NHTSA) standards now require all newly manufactured tractors to be equipped with brakes on all axles.

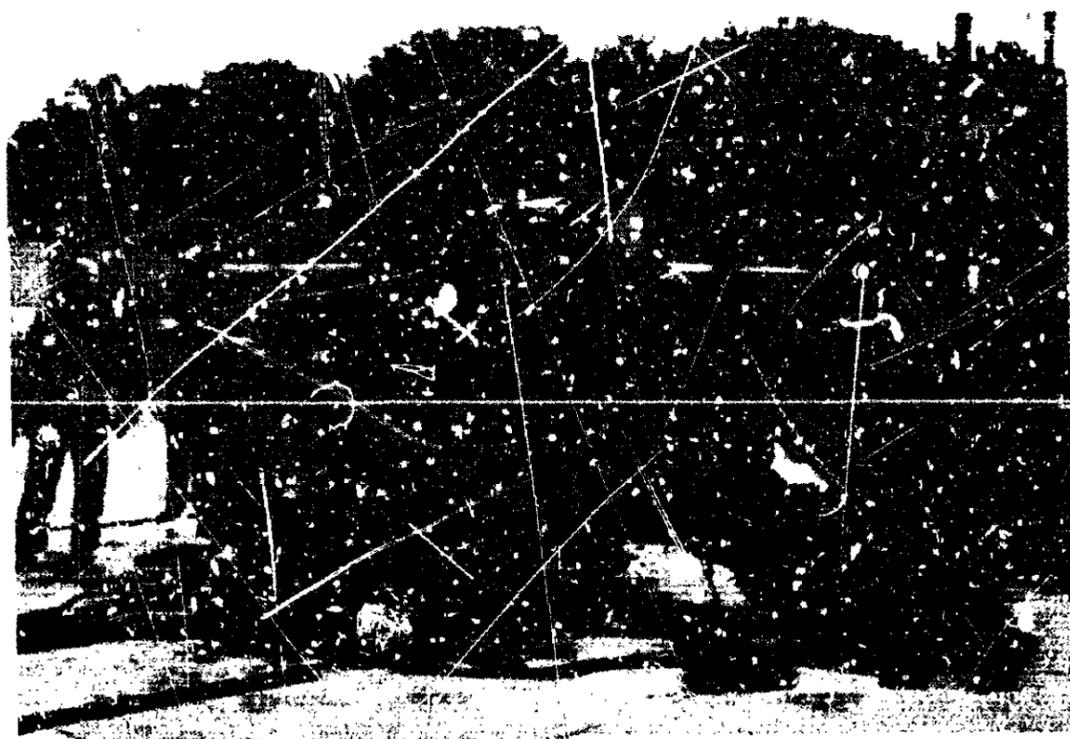
However, BMCS regulations (49 CFR Part 393.42(c)) state:

Trucks and truck tractors having three or more axles need not have brakes on the front wheels, except when such vehicles are equipped with at least two steerable axles the wheels of one such axle need not be equipped with brakes.

Recently, the U.S. Department of Transportation has initiated action to amend Section 393.42(c) to require that all front or steering axles be equipped with operable service brakes. This action would effectively close the current loophole that allows the disconnection or removal of brakes that the NHTSA standards require manufacturers of new trucks to provide.

A postaccident inspection of the tractor-semitrailer was conducted by Safety Board investigators on June 24, 1985. On the truck tractor, the cab, all interior components, saddle fuel tanks, tires, brake chamber diaphragm, and all flammable and low melting point materials were consumed in the fire. The fifth wheel on the tractor separated at its attachments to the tractor's frame and remained attached to the kingpin on the semitrailer. (See figure 4.) The engine and transmission showed no internal damage, and the transmission was found in the neutral position. The brakes on both wheels of the first drive axle had no missing parts, and the left and right brake linings were 5/8- and 3/4-inch thick, respectively. There were a small number of grease deposits on the friction surfaces of the brake linings between the lining pad and the brake drum; the cause of these deposits could not be determined. The brake linings on both wheels of the second drive axle on the truck tractor were saturated with grease.

On the semitrailer, all four type-30 air-mechanical service brakes were undamaged. When the semitrailer brake chambers were pressurized to 110 psi, the pushrod strokes on all four brakes exceeded the manufacturer's recommended readjustment length and were out of adjustment. (See table 3.) A visual inspection of the right front and right rear brake drums on the semitrailer indicated no contact between the brake lining and brake drum when air pressure was applied. The brake linings on the left front and left rear wheels of the semitrailer made contact with the drums when air pressure was applied.



Remains of tractor.



Remains of semitrailer.

Figure 4.—Damage to tractor-semitrailer.

Table 3.—Measurement (in inches) of semitrailer air brake pushrod stroke.

	<u>Left</u>	<u>Right</u>	<u>Recommended</u> <u>Maximum Stroke</u>	<u>Chamber</u> <u>Type</u>
Front axle	2 1/2	2 1/2	2	30
Rear axle	2 1/4	2 3/8	2	30

Station Wagon.--The four-door, 1977 Oldsmobile station wagon was equipped with a V-8 engine, automatic transmission, power steering, and power brakes. At the time of the accident, the station wagon and its seven occupants weighed about 5,243 pounds. As a result of the impact, there was no survivable space available in the station wagon. As a result of the postcrash fire, all flammable and low melting temperature materials in the station wagon were destroyed. The front bumper was bent 8 inches inward on the left side and the chassis sustained massive impact damage in the rear. The rear axle, the rear bumper, and the trailer hitch were separated from the chassis, and both frame rails were bent at a 15° angle to the right. The bottom of the gas tank was ruptured 15 inches laterally. (See figure 5.)

Highway Information

Roadway.--After it exits eastbound I-40, southbound SR 59 is generally straight for about 1.2 miles. There are several places where a large commercial vehicle can be pulled off the roadway and turned around to avoid descending the grade. As the southbound roadway approaches the hillcrest preceding the accident site, the roadway curves to the left and then right for southbound vehicles. The radius of the right curve is 212.1 feet at the center of the southbound traffic lane.

At the accident site, the asphalt highway has two north/south, 12-foot-wide lanes, a 30-mph posted speed limit, and double yellow (no passing) centerlines. Downgrades range from 3.3 to 12.0 percent for southbound vehicles north of the accident site. About 416 feet north of the bottom of the 3,439-foot southbound downgrade, the southbound lane widens to two lanes, the right lane of which is a right-turn-only lane to Knox Street. About 216 feet north of the bottom of the downgrade, an 18-foot-wide level, railroad right-of-way crosses the highway. The highway south of the railroad right-of-way is a 5.97 percent descending grade. (See figure 2.)

A postaccident inspection of the accident site revealed intermittent tire marks in the southbound lane of SR 59, starting about 90 feet north of the railroad crossing and ending about 50 feet north of the railroad crossing. A thin 2-foot-long tire mark was found 1.5 feet west of the lane line and 22 feet south of the railroad crossing, a single 2-inch-wide gouge mark was found 70 feet south of the crossing, and numerous gouge marks were found on the roadway and at the curb lane of Main Street in front of the hardware store located 84 feet south of the railroad crossing. The missing guardrail originally located on Main Street was found twisted inside the hardware store. The roadway coefficient of friction for passenger cars was measured to be .84 on dry pavement.

Signing.--At the time of the accident, highway regulatory signs in two locations warned truckdrivers traveling east on I-40 and south on SR 59 that trucks are prohibited on southbound SR 59. (See figure 6.) The signs were located on eastbound I-40 about 1/2 mile from the southbound SR 59 exit and on southbound SR 59 at the hillcrest about 6,300 feet south of I-40.

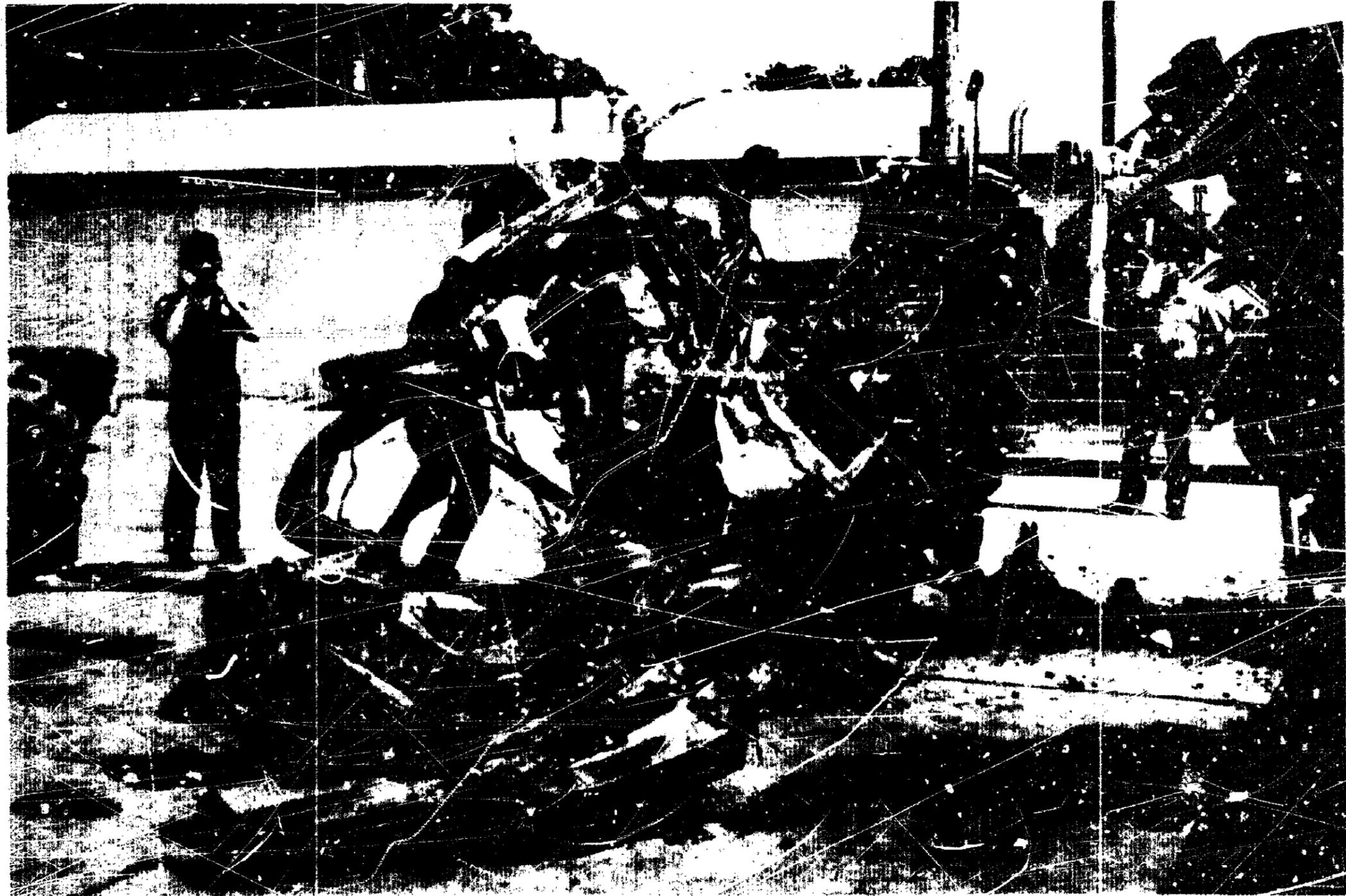


Figure 5.—Remains of station wagon.

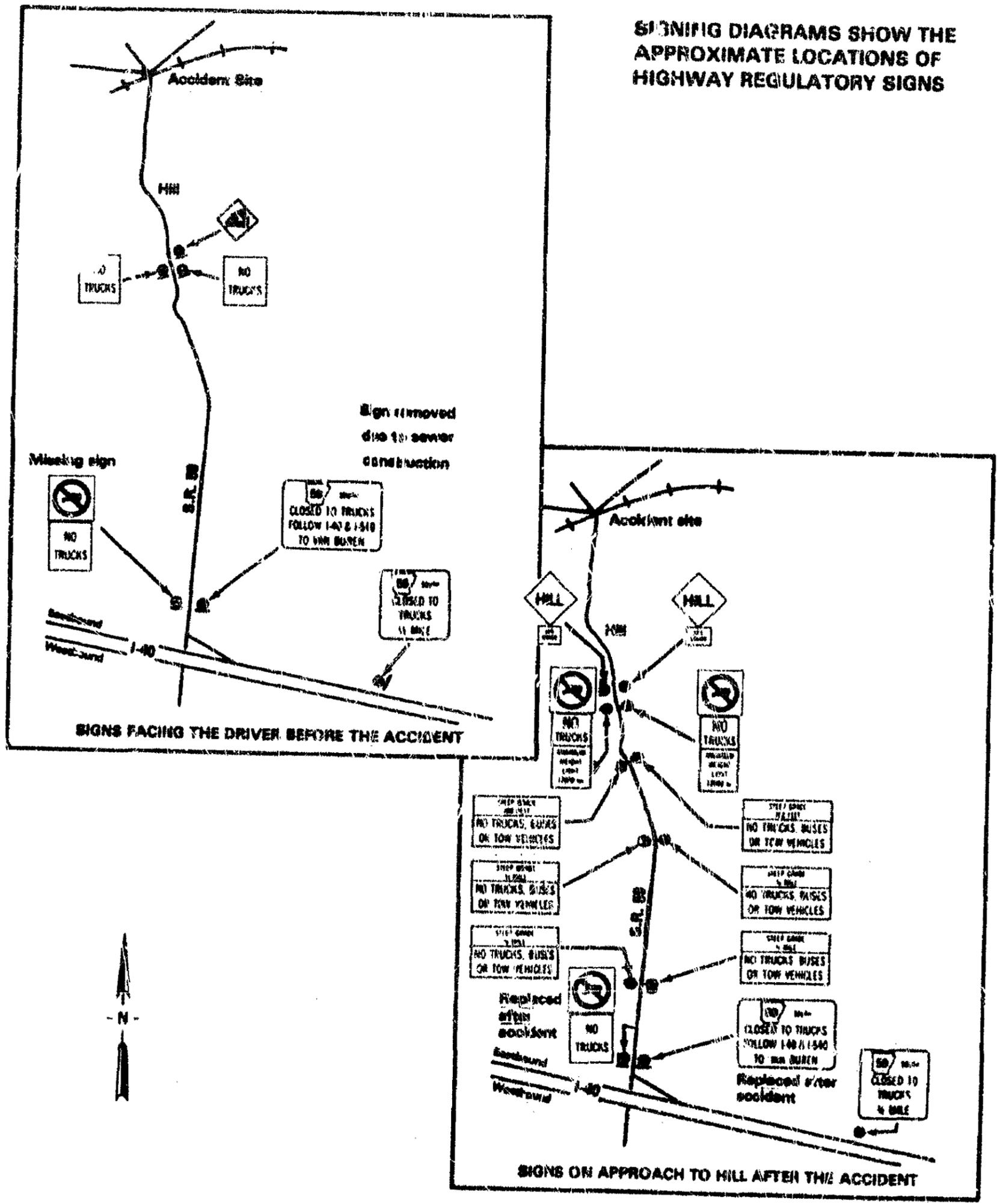


Figure 6.—Highway signing on the approach to the accident site.

A private sewer construction crew that was working in the area had removed a regulatory sign on the right side of the access road south of the intersection of the I-40 exit ramp and facing southbound SR 59. In addition, a small regulatory sign opposite this sign on the left side of the road in the sewer construction area was missing. The permit, which was issued by the Arkansas State Highway and Transportation Department (ASHTD), required the contractor to "protect traffic," allowed the use of portable signs, and required signing to be in compliance with the Federal Highway Administration's Manual on Uniform Traffic Control Devices (MUTCD). However, the permit contained no specific provisions for maintaining, in place, where appropriate, highway signs during construction.

Section 6B-7 of the MUTCD states:

6B-7 Application

Construction and maintenance operations represent unusual roadway conditions and warrant special attention. If construction or maintenance operations require regulatory measures different from those normally in effect, the existing permanent regulatory devices shall be removed or covered and superseded by the appropriate temporary regulatory sign, taking into account applicable ordinances or statutes of the jurisdiction involved.

Section 6A-4 of The Traffic Control Devices Handbook, which augments the MUTCD, states:

Maintain the controls as if every driver were approaching the area for the first time.

Accident History.--In 1979, the city of Van Buren enacted Ordinance No. 11 which closed southbound SR 59 to trucks, buses, and towed vehicles because such operations were deemed to endanger the safety, health, and well-being of the inhabitants of Van Buren. (See appendix C.) A review of the Van Buren Police Department records, however, did not indicate any enforcement action between 1979 and the date of the accident. Between 1982 and 1984, 40 motor vehicle accidents occurred between the crest of the hill and the intersection of SR 59 and Main Street. (See table 4.) Of the accidents, 3 resulted in four injuries and 36 involved property damage.

Table 4.--Motor vehicle accidents: 1982 - 1984.

<u>Year</u>	<u>Property Damage</u>	<u>Injury</u>	<u>Fatal</u>	<u>Total Accidents</u>
1982	17	1	0	18
1983	13	1	0	14
1984	6	2	0	8
Total	36	4	0	40

Officers of the Van Buren Police Department indicated that in the past a majority of the most serious accidents involved runaway passenger cars, trucks, and one bus.

Medical and Pathological Information

The Arkansas State Medical Examiner's Office performed an autopsy on the truckdriver and his wife and determined that they died as the result of massive trauma. The medical examiner found no evidence of smoke inhalation. Toxicology tests indicated that the truckdriver's blood alcohol count (BAC) was between 0.04 and 0.05 percent (ethyl alcohol). The Arkansas State Public Health Laboratory reported an alcohol level of 0.04 percent; the Arkansas State Crime Laboratory reported an alcohol level of 0.05 percent. No trace of carbon monoxide, cocaine, marijuana, or other drugs was found in the truckdriver.

All seven occupants of the station wagon died as a result of massive trauma.

Motor Carrier Operations

The tractor-semitrailer was operated under a trip-lease agreement ^{2/} with C. Maxwell Trucking Company, Inc. (Maxwell), of Omaha, Nebraska. Maxwell, a trucking brokerage firm, transports various commodities under a certificate of public convenience and necessity issued by the Interstate Commerce Commission (ICC). The actual transport of goods is handled by individual truck owners or companies. The trip was arranged by the driver's father who telephoned the Maxwell terminal in Council Bluffs, Iowa. Under the terms of the trip-lease agreement, the truck owner/operator was temporarily authorized to operate in interstate commerce using Maxwell's ICC motor carrier operating authority to transport a load of frozen meat products from Council Bluffs, Iowa, to Dallas, Texas, with one intermediate stop in Fort Smith, Arkansas. The trip-lease agreement did not require that a pretrip vehicle safety inspection be conducted by a representative of Maxwell.

In a postaccident interview conducted by Bureau of Motor Carrier Safety (BMCS) investigators, the Maxwell employee who was responsible for obtaining the signature of the driver on the trip-lease agreement indicated that the trip-lease agreement was not signed by the driver and that he signed the truckdriver's name to the agreement between the time the truck left the terminal on June 19 and the time BMCS investigators and Safety Board investigators inspected it on June 24, 1985. A BMCS audit of Maxwell's trip-lease agreements after the accident reflected that about 20 percent of the trip leases on file had not been signed.

Enforcement Activities

State.--During the 3 months preceding this accident, the accident truckdriver and truck were subjected to three distinctly different types of enforcement activities. First, the citations issued to the accident truckdriver in Arizona and California were issued by uniformed patrol officers who were trained to enforce "Rules of the Road" violations and not trained or empowered to conduct commercial vehicle safety inspections. In Oregon, the accident truckdriver was cited by a "weightmaster" whose duties were confined to overweight truck enforcement. The officer from Missouri who cited the accident truck was a State-trained motor carrier safety inspector who specializes in conducting commercial vehicle safety inspections as well as "Rules of the Road" violation enforcement. While only one of these four officers was trained for and assigned the

^{2/} A trip-lease is an agreement, usually in writing, between a lessee motor carrier and a lessor, usually the owner of the vehicle, wherein the lessor supplies the vehicle and driver for use by the lessee for a single trip with a stated origin and destination. The lease is terminated upon completion of the trip.

duties of a commercial vehicle safety inspector, all four States are members of the Federally funded Motor Carrier Safety Assistance Program (MCSAP) which is designed to provide support and training for State motor carrier safety programs. A goal of this program is to increase the number of State enforcement personnel qualified to conduct commercial vehicle and driver safety inspections and thereby remove unqualified drivers and unsafe trucks from the roads.

Federal--As a motor carrier conducting operations in interstate or foreign commerce, Maxwell is subject to the requirements of the Federal Motor Carrier Safety Regulations (FMCSR) contained in 49 CFR Parts 390 to 397. Part 391.11(b)(1) prohibits the operation of interstate commercial trucks and buses by drivers who are less than 21 years of age. Part 391.11(b)(7) requires that commercial vehicle drivers operating interstate have a currently valid motor vehicle operators license or permit. Section 391.15(b) states:

A driver is disqualified for the duration of his loss of his privilege to operate a commercial vehicle on public highways, either temporarily or permanently, by reason of the revocation, suspension, withdrawal, or denial of an operator's license, permit, or privilege, until that operator's license, permit, or privilege is restored by the authority that revoked, suspended, withdrew, or denied it.

It is common for commercial truckdrivers to have licenses from more than one State. However, if a driver's privilege is revoked or suspended in one State, he or she is disqualified to drive in any State.

BMCS field staff performs safety management audits and reviews of motor carrier operations and roadside driver/vehicle inspections to obtain information concerning compliance with Federal regulations and to gather evidence for enforcement actions when violations are discovered. Motor carriers and drivers who violate Federal regulations are subject to criminal and civil penalties. The BMCS has 93 investigators distributed throughout the United States who are responsible for conducting safety audits on more than 200,000 carriers and for conducting field safety inspections on about 400,000 trucks; this level of staffing provides only 1 investigator for every 2,200 carriers or about 1 investigator for every 40,000 trucks.

During roadside inspections, motor carrier safety inspectors may mark and declare vehicles "out-of-service" if certain serious mechanical defects or driver violations are found. Currently, a driver may be declared "out-of-service" if for example he or she is found, at the time of the inspection, to be driving without a current record of duty status, or if it is found that the driver is operating the vehicle in excess of the maximum hours of service permitted by Federal regulations. (See appendix B.) There is no Federal regulation which describes a criterion for declaring a driver out-of-service if the driver has no valid license permitting the operation of large trucks or buses, is operating on a license that has been suspended or revoked in any jurisdiction, or is under the age of 21.

The State of Missouri, like all other States participating in the MCSAP, has adapted the Federal out-of-service criteria which have no provision for declaring a commercial driver out-of-service solely because he/she is under the age of 21.

During the Missouri State inspection the accident truck was cited for 18 defective equipment violations which by themselves, were not grounds for the tractor or semitrailer to be declared out-of-service. The cumulative number of defective equipment violations clearly illustrates the overall condition of the tractor-semitrailer (see table 2). At

present motor carrier safety regulations do not have provisions for declaring a commercial vehicle out-of-service for multiple defective equipment violations which by themselves are not a part of the vehicle out-of-service criteria. Except for specific components which may be cause for declaring a commercial vehicle out-of-service, there is no mechanism which permits a safety inspector to remove a commercial vehicle from service if it has numerous deficiencies which are not specifically designated as out-of-service criteria (see appendix B).

ANALYSIS

The Accident

Because the truckdriver telephoned and asked the shipping foreman for directions to Gerber Products Company, the Safety Board believes that the truckdriver was unfamiliar with the area near the company in Fort Smith, Arkansas. However, it is unknown why the truckdriver deviated from the prescribed route.

Several witnesses estimated the speed of the truck to have been between 30 and 35 mph just before it collided with the station wagon. Using the calculated curve radius of 212.1 feet on the hilltop, the length of the hill, the grades, and the coefficient of friction, the Safety Board calculated that the truck was traveling at a speed not greater than 35 mph when it left the hilltop and from 52 to 59 mph when it struck and overrode the station wagon. Based on the calculations, the 30- to 35-mph speed of the truck at the top of the hill was slow enough for the driver to down shift to a lower gear and use the truck's engine to help control his speed down the hill. The neutral gear shift position that Safety Board investigators observed during the postcrash inspection and witnesses' statements that they heard "grinding gears" indicate that the driver was attempting to down shift in an unsuccessful effort to regain control of the speed of the tractor-semitrailer after it began to descend the grade.

The truck tractor had no brakes on its steering axle and the grease deposits found on the brakes of the first drive axle clearly indicate that this axle also had no braking capability. Although the brake linings on the left front and rear semitrailer wheels touched the brake drums when the brake chambers were pressured to 110 psi during the postcrash inspection of the semitrailer, there was no contact between the right front and right rear brake linings and drums. These brakes also were out of adjustment and would have effected little or no braking. Therefore, the brakes on the first drive axle were the only brakes which could have worked to slow the 70,000-pound vehicle. The Safety Board concludes that the brakes on the accident truck were insufficient to be effective in controlling the vehicle's speed as it descended the grade.

The Safety Board was unable to find any maintenance records or other documentation to indicate what routine inspection and maintenance had been performed on the accident truck. The lack of maintenance and inspection records, the deficiencies noted during the May 12 inspection conducted by the Missouri State Highway Patrol, and the condition of the brakes on the truck noted during the postcrash inspection lead the Safety Board to believe that the accident truck was not being adequately inspected or maintained. The mechanical condition of the service brakes appeared to have been deteriorating for some time.

Witnesses reported that the truck vaulted and traveled airborne as it passed over the railroad grade crossing. The thin, 3-foot-long tire mark found in the northbound lane 1.5 feet west of the centerline and starting 22 feet south of the railroad grade crossing probably was made by one or more of the left side tires of the truck when the tires again contacted the roadway surface after the vehicle vaulted.

A toxicological examination of the truckdriver's blood indicated a BAC of between 0.04 and 0.05 percent. While the quantity of alcohol in the blood was not sufficient to indicate that the truckdriver was legally intoxicated (a BAC greater than 0.10 percent), a driver's judgment can be adversely affected by any use of alcohol. At a 0.05 percent BAC, driving performance may be adversely affected and there may be some impairment in judgment. ^{3/} Reaction time may be slowed, motor coordination may be deteriorated, and perceptual processes, including vision, may be impaired. The ability to estimate speed may be diminished, with some degree of impairment in the performance of tracking tasks. ^{4/}

The operation of a large commercial vehicle often is difficult for a driver who is sober and alert and requires constant attention and a clear head. Any alcohol-impaired driver is a serious hazard to the motoring public. Therefore, the Safety Board believes that the consumption of alcohol by any commercial driver while on duty is unacceptable.

In this accident, the amount of alcohol in the truckdriver's system may have impaired his judgment and his ability to properly assess the danger of descending the grade. However, there was insufficient evidence that it was causal to the accident.

Service Brake Adjustment on Commercial Vehicles

The Safety Board has investigated at least 12 accidents involving runaway commercial vehicles on downgrades. (See appendix D.) A significant factor in all the accidents was improperly adjusted service brakes. In most cases, adequate inspection and maintenance could have prevented these accidents.

Self-adjusting brakes on large commercial vehicles with air-mechanical brake systems are no substitute for a conscientious inspection and maintenance program, and the use of service brakes alone without operating in a proper gear may be insufficient to prevent all truck runaway accidents, especially on long grades. However, the Safety Board believes that the availability of optimum brake adjustment, especially in the early stages of a runaway, will result in the maximum braking which may enable a driver to regain control of the speed of the vehicle in those cases where the brakes are capable of reducing the speed of a vehicle to enable a downshift to a lower gear. Had the accident truck been equipped with self-adjusting service brakes, the driver may have been able to reduce the speed of the truck, down shift to a lower gear, and avoid the collision. If impact was unavoidable, the slower speed would have reduced the accident severity significantly.

As a result of five of its earlier investigations, on June 23, 1978, the Safety Board recommended that the NHTSA:

H-78-48

Develop a Federal Motor Vehicle Safety Standard stating a performance requirement for all newly manufactured commercial vehicles to have equipment that would insure brakes being in proper adjustment at all times.

^{3/} National Transportation Safety Board, "Alcohol and Transportation Safety: Accident Investigator's Workshop Manual," March 1984.

^{4/} Tracking tasks—driver's hand-to-eye coordination as it relates to the operation of the motor vehicle.

In its October 16, 1978, response to Safety Recommendation H-78-48, the NHTSA stated that a program for self-adjusting brakes for commercial vehicles was being developed for possible inclusion in a 3-year rulemaking plan. Safety Recommendation H-78-48 is being held in an "Open--Unacceptable Action" status because NHTSA has taken no positive action for its implementation. The Safety Board reiterates this recommendation and urges the NHTSA to expedite implementation of a Federal Motor Vehicle Safety Standard requiring that all newly-manufactured commercial vehicles with air-mechanical service brake systems be equipped with self-adjusting brakes.

Highway Information

The left curve sign, the 30-mph speed limit signs, and highway regulatory signs which prohibited truck traffic on southbound SR 59 were clearly visible. Although the regulatory sign at the deceleration ramp from I-40 onto SR 59 had been removed temporarily by a sewer construction crew, the truckdriver should have responded to signs posted on I-40 and before the hillcrest by pulling off the roadway and turning around to avoid descending the grade.

It is possible that the truckdriver either failed to see the available regulatory signs due to the effects of alcohol in his system, or that he purposely disregarded the signs at the top of the hill that prohibited trucks on southbound SR 59. However, the removal of the regulatory sign on SR 59 just south of the I-40 ramp prohibiting truck traffic on SR 59 might have been a factor in this accident. The location of the sign was significant because the truckdriver would have had to stop, or at least slow down, before turning right onto southbound SR 59, and he would have had time to recognize and react to the hazard ahead. The sign was 1.2 miles in advance of the hill, and several pulloff or turnaround areas were available. Safety Board investigators examined the construction permit and determined that there were no specific provisions for maintaining in place highway signs during construction. The Board believes that the proper maintenance of signs and traffic control devices is essential, especially during road construction.

The ASHTD is considering changes in future highway-related construction utility permits which may include provisions requiring adequate traffic control during periods of construction. In this regard, the Safety Board urges that, for future project specifications and permits, the ASHTD specifically require the maintenance of all traffic signs unless removal is approved by the responsible government traffic engineer. Furthermore, the Safety Board believes that the Federal Highway Administration should modify the MUTCD to include specific language relative to the maintenance of signing during construction projects and to the signing of roadways where commercial vehicle traffic is prohibited. These modifications would provide a uniform set of guidelines nationwide.

While on scene, Safety Board investigators reviewed accident statistics on the downgrade into Van Buren and discussed potential safety improvements with representatives of the city of Van Buren and the ASHTD. The discussions determined that the topography does not lend itself to modification of the grade, but that additional signing and an ongoing enforcement policy would be effective as alternatives. As a result, the city of Van Buren and the ASHTD increased the number of regulatory and alternate route signs prohibiting large vehicle traffic from entering Van Buren on SR 59. The Van Buren City Council on July 15, 1985, amended Ordinance No. 11 to raise the fine from \$25 to \$1,000 and to provide a 30-day jail term for repeat offenders. (See appendix C.)

To provide higher visibility, 4 weeks after the accident five dual sets of signs were installed along both sides of the roadway from the deceleration ramp of I-40 onto SR 59 and the hill crest 1.2 miles south on SR 59. (See figure) The city council also directed the police department to strictly enforce the ban against large vehicles attempting to descend the grade.

Survivability

Due to the dynamic forces generated during the crash sequence, this accident was not survivable. When the truck collided with the rear of the station wagon and overrode it, the passenger car occupant compartment was crushed leaving no survivable space. The truck tractor incurred significant impact damage when it collided with the store front and the interior building firewall, leaving little survivable space. All vehicle occupants were ejected and found buried under building debris. There was no indication that any of the victims survived the collision. The medical examiner's investigation determined that all the victims died of massive trauma and not as a result of smoke inhalation or fire.

Enforcement of Motor Carrier Safety Regulations

The 20-year-old truckdriver's driving record as well as his actions on the day of the accident are indicative of a person who was prone to disregard any law or regulation that might be an inconvenience. The truckdriver, driving the same truck, was stopped by law enforcement officers in four separate States a few weeks before the accident. The level of scrutiny the truckdriver and accident truck received varied because the training of and responsibilities assigned to the patrol officers, the weighmaster, and the motor carrier safety inspector were distinctly different. The only enforcement officer empowered to enforce motor carrier safety regulations was the Missouri State officer who was trained in commercial vehicle safety inspections. However, each had inspected the driver's license but only the inspector in Missouri recognized that the driver was not qualified to operate an interstate commercial vehicle. Furthermore, the identification of a driver whose license is suspended or revoked is difficult during a roadside inspection because all 50 States and the District of Columbia individually may have to be contacted to determine this information if the driver does not voluntarily provide it.

To eliminate many loopholes currently found in the present State driver licensing programs, the Safety Board believes that every commercial vehicle operator engaged in interstate commerce should be subject to a licensing system that:

- o is classified by vehicle factors, such as weight and configuration;
- o includes a special license or license endorsement for hazardous materials drivers and for drivers of vehicles with special handling characteristics;
- o thoroughly tests an applicant's vision, vehicle-handling ability, and knowledge of safe practice;
- o fully retests the driver at each license renewal; and
- o prevents a driver from holding more than one license at a time, and makes sure that all traffic violations are included in a driver's records.

Incorporating all of these features into the proposed program would produce an integrated national system which could provide uniform licensing practices throughout the 50 States and the District of Columbia. This would greatly aid law enforcement personnel in quickly establishing whether a commercial truck driver is properly licensed.

Because of its concern for truck driver training, the Safety Board recently issued a safety study on training, licensing, and qualifications of heavy truck drivers. ^{5/} As a result of the study, the Safety Board recommended that the Secretary of Transportation:

H-86-8

Develop a program under which State and Federal authorities would jointly administer a National Driver License for commercial truck drivers. Such a program should implement the one-license/one-record concept, and a system should be developed that will keep track of the records of all individuals holding a National Driver License.

The implementation of such a national licensing system will not prevent drivers from illegally operating commercial vehicles; however, when stopped by enforcement personnel, such drivers' illegal operation will become readily apparent so that enforcement actions can be taken to prevent continued operation. (Note: Safety Recommendation H-86-8 is not directly applicable in this accident because the driver was underage, and therefore, he would not have qualified for a national driver's license. Nonetheless, if a national drivers license did exist it may have aided the enforcement personnel in recognizing that he was underage.)

Dealing effectively with drivers who violate motor carrier safety regulations and traffic laws is an ever increasing problem as is evident from the 18 percent increase in commercial truck accidents since 1982. ^{6/} Uniformed police officers are trained to enforce Rules of the Road violations, and only a limited number of officers have received advanced training as motor carrier safety inspectors.

The BMCS is attempting to address the problem of an insufficient number of Federal inspectors by hiring 150 new inspectors who primarily will be assigned to conducting trucking company safety audits. Also, the BMCS is attempting to address the problem of unsafe commercial vehicles through its Motor Carrier Safety Assistance Program. The objective of the program is to improve the safe operation of commercial vehicles by encouraging States to develop programs for conducting vehicle/driver roadside safety inspections and by training State enforcement personnel to perform effective safety inspections. The MCSAP permits State, county, and local motor carrier safety inspectors to enforce safety regulations on both interstate and intrastate vehicles. Under the provisions of the program, the BMCS provides participating States with grant funding and training support. Currently, 47 States and territories participating in the program have adopted Federal Motor Carrier Safety Regulations or enforce similar State statutes for commercial vehicles and drivers.

During 1985, the first full year of the MCSAP, 1,500 State and local motor carrier safety specialists were trained, an estimated 300,000 roadside safety inspections were conducted, 30,000 drivers were inspected for proper qualifications, and 100,000 unsafe vehicles were removed from service. This program already has greatly extended BMCS's capabilities for enforcing motor carrier safety regulations.

Preliminary data collected in 1988 by the Safety Board indicates that MCSAP has made significant progress. Seventeen million dollars have been allocated for training and implementation of the program. About 1,600,000 roadside inspections have been

^{5/} Safety Study—"Training, Licensing, and Qualification Standards for Drivers of Heavy Trucks" (NTSB-SS/86/01).

^{6/} Insurance Institute for Highway Safety—"Big Trucks and Highway Safety" 1985.

conducted, and all relevant inspection and driver data will be entered into the BMCS data base for future use by all participating States. Currently, two studies have been funded to analyze the data for driver-related problems. The State of Montana's use of an abbreviated inspection form to check vehicle equipment permits its inspectors to concentrate more on identifying driver-related problems. In Nevada, a new on-line computer system will aid inspectors by providing them with driver violation information. Presently the system is used to check States surrounding Nevada. However, the system has the capability of checking all State drivers files.

Enforcement personnel must be trained to identify each of the numerous potential safety violations and must be trained to properly enforce these violations. The Safety Board believes that MCSAP provides great potential for improving the safety of commercial transportation throughout this nation and urges each State to participate to the fullest in this program. The States of Alaska, Florida, New Mexico, Texas, and Wyoming, currently are the only States not involved in the MCSAP, and the Safety Board urges these States to participate in the MCSAP. The Safety Board believes that through the training, support, and direction of the MCSAP these States, as well as the rest of the nation, will benefit from the improved safety of commercial vehicle operations and resultant reduction in the number of accidents.

Declaring Drivers and Commercial Vehicles Out-of-Service

Although the accident truckdriver was cited during the May 12, 1985, Missouri inspection for driving a commercial vehicle in interstate commerce when he was less than 21 years of age and for not having a valid license to drive a truck, he could not be declared out-of-service for this violation and, in fact, continued to drive in violation of these Federal rules. Also, the accident truckdriver's father/codriver could not be declared out-of-service although he was driving on a license that had been suspended or revoked in three separate jurisdictions. The Safety Board believes that the BMCS should revise Part 391 of the FMCSR and amend its driver out-of-service criteria to include declaring drivers who are less than 21 years of age, or who are otherwise disqualified, out-of-service at the time and place of the inspection, and should encourage the States which are participating in MCSAP to do likewise.

The number of defective equipment violations that the Missouri inspector noted in his inspection is indicative of the generally poor mechanical condition of the accident truck. While these violations by themselves are not grounds for declaring the truck out-of-service, the Safety Board believes collectively they adversely affected the safe operation of the truck. Further, the Safety Board urges the Bureau of Motor Carrier Safety to study the feasibility of implementing a point system for safety inspection violations which would require a vehicle with multiple deficiencies to be declared out-of-service.

Although the short term trip-lease agreement did not require Maxwell to inspect the driver's qualifications, an inspection would have provided the company with another opportunity to verify that the driver and truck met all applicable requirements.

CONCLUSIONS

Findings

1. Weather was not a factor in this accident.

2. The 20-year-old tractor-semitrailer driver was underage and, therefore, was not qualified by Federal regulation to operate a commercial vehicle in interstate commerce. Current Federal regulations are deficient in that they do not include a criterion for declaring a driver out-of-service if he or she is underage or otherwise disqualified.
3. The truckdriver was unfamiliar with the area and with truck routes into Van Buren and Fort Smith.
4. A toxicological examination of the truckdriver's blood indicated a BAC of between 0.04 and 0.05.
5. The amount of alcohol in the truckdriver's system may have impaired his judgment and his ability to properly assess the danger of descending the grade leading into Van Buren.
6. The tractor-semitrailer driver did not respond appropriately to regulatory signs prohibiting truck traffic on State Route 59.
7. The truckdriver unsuccessfully attempted to down shift to a lower gear in an effort to control the speed of the truck as it descended the grade.
8. The license held by the truckdriver would not have been included in the proposed National Commercial Drivers License because of his age.
9. The tractor-semitrailer was traveling at a speed not greater than 35 mph when it left the top of the hill and between 52 and 59 mph when it struck and overrode the station wagon.
10. The service brakes on the accident truck were insufficient to be effective in controlling the speed of the truck as it descended the grade due to inadequate inspection and maintenance.
11. Due to the dynamic forces generated during the crash sequence, it is doubtful that any of the victims in the accident could have survived. Deformation of the tractor cab and station wagon was severe and no survivable space was left.
12. Had the accident truck been equipped with self-adjusting brakes, the driver may have been able to reduce the speed of the truck, down shift to a lower gear, and regain control over his vehicle.
13. The driver was issued 4 traffic summons for 10 violations in the States of Arizona, California, Oregon, and Missouri from March 25, 1985 to May 12, 1985. After being stopped in Missouri, the truck was taken out-of-service and the driver was arrested by a State Motor Carrier Safety Inspector.
14. There was no contractual requirement between the city of Van Buren and the sewer contractor which specifically required the contractor to maintain temporary traffic control signing in the area when the in-place regulatory signs were removed.

15. Although the city of Van Buren had enacted in 1979 an ordinance that closed southbound State Route 59 to trucks, buses, and towed vehicles, the chief of the Van Buren Police Department had failed to enforce the ordinance between 1979 and the date of the accident.

Probable Cause

The National Transportation Safety Board determines that the probable cause of this accident was the failure of the truckdriver to comply with regulatory signs and to properly use limited service brakes and transmission for speed control purposes, which permitted the tractor-semitrailer to accelerate to a high speed while descending the steep grade on State Route 59. Contributing to the accident were the improper adjustment of the vehicle's service brakes due to inadequate vehicle maintenance; the truckdriver's lack of experience, maturity, and training required for interstate truckdrivers; and the absence of an adequate surveillance and enforcement program for the trucking system.

RECOMMENDATIONS

As a result of its investigation of this accident, the National Transportation Safety Board reiterated Safety Recommendation H-78-48 issued on June 23, 1978, to the National Highway Traffic Safety Administration:

Develop a Federal Motor Vehicle Safety Standard stating a performance requirement for all newly manufactured commercial vehicles to have equipment that would insure brakes being in proper adjustment at all times.

As a result of its investigation of this accident, the National Transportation Safety Board made the following recommendations:

--to the Bureau of Motor Carrier Safety:

Amend Part 391 of the Federal Motor Carrier Safety Regulations and the driver out-of-service criteria to provide for declaring out-of-service at the time and place of a driver/vehicle roadside inspection those drivers who are found to be underage or otherwise disqualified, and encourage States participating in the Motor Carrier Safety Assistance Program to adopt similar procedures. (Class II, Priority Action) (H-86-65)

Study the feasibility of implementing a point system for safety inspection violations that in and of themselves are not grounds for a commercial vehicle to be "declared out-of-service," but which would, based on quantity, be cause for declaring a vehicle out-of-service. (Class II, Priority Action) (H-86-66)

Oversee and monitor the States which currently participate in the Motor Carrier Safety Assistance Program and encourage them to adopt and aggressively enforce all Federal Motor Carrier Safety Regulations and all out-of-service criteria to ensure uniformity. (Class II, Priority Action) (H-86-67)

--to the Federal Highway Administration:

Modify the Manual on Uniform Traffic Control Devices to include specific language that requires contractors to maintain highway regulatory signs during periods of construction on or adjacent to the roadway. (Class II, Priority Action) (H-86-68)

Evaluate existing techniques used by States to prohibit commercial vehicles from routes, determine the effectiveness of various strategies, and then revise the Manual on Uniform Traffic Control Devices. (Class II, Priority Action) (H-86-69)

--to the Arkansas State Highway and Transportation Department:

Provide specific language in work permit specifications that require contractors to maintain highway regulatory signing along roadsides while construction activities are going on. (Class II, Priority Action) (H-86-70)

--to the Governors of the States of Alaska, Florida, New Mexico, Texas, and Wyoming:

Actively participate in the Bureau of Motor Carrier Safety's Motor Carrier Safety Assistance Program. (Class II, Priority Action) (H-86-71)

BY THE NATIONAL TRANSPORTATION SAFETY BOARD

/s/ PATRICIA A. GOLDMAN
Acting Chairman

/s/ JIM BURNETT
Member

/s/ JOHN K. LAUBER
Member

/s/ JOSEPH T. MALL
Member

August 8, 1986

APPENDIXES

APPENDIX A

INVESTIGATION

Investigation

The National Transportation Safety Board was notified of this accident at 11 p.m. on June 21, 1985. Highway accident investigators were dispatched from the Safety Board's Headquarters in Washington, D. C., and arrived on scene at 10:15 a.m. on June 22, 1985. Participating in the investigation were representatives of the Van Buren City Police Department, the Crawford County, Arkansas, Coroner's Office, the Federal Bureau of Investigation, the Arkansas Motor Carrier Safety Office of the Federal Highway Administration, and the Arkansas Department of Transportation.

Depositions and Hearings

There were no depositions taken and no public hearing was held in conjunction with the investigation of this accident.

APPENDIX B

EXCERPTS FROM THE CODE OF FEDERAL REGULATIONS
TITLE 49--TRANSPORTATION, CHAPTER III

Subpart B—Qualification and
Disqualification of Drivers

§ 391.11 Qualifications of drivers.

(a) A person shall not drive a motor vehicle unless he is qualified to drive a motor vehicle. Except as provided in § 391.63, a motor carrier shall not require or permit a person to drive a motor vehicle unless that person is qualified to drive a motor vehicle.

(b) Except as provided in Subpart C of this part, a person is qualified to drive a motor vehicle if he—

(1) Is at least 21 years old;

(2) Can read and speak the English language sufficiently to converse with the general public, to understand highway traffic signs and signals in the English language, to respond to official inquiries, and to make entries on reports and records;

(3) Can, by reason of experience, training, or both, safely operate the type of motor vehicle he drives;

(4) Can, by reason of experience, training, or both, determine whether the cargo he transports (including baggage in a passenger-carrying motor vehicle) has been properly located, distributed, and secured in or on the motor vehicle he drives;

(5) Is familiar with methods and procedures for securing cargo in or on the motor vehicle he drives.

(6) Is physically qualified to drive a motor vehicle in accordance with Subpart E—Physical Qualifications and Examinations of Part 391;

(7) Has been issued a currently-valid motor vehicle operator's license or permit;

(8) Has prepared and furnished the motor carrier that employs him with the list of violations or the certificate as required by § 391.37;

(9) Is not disqualified to drive a motor vehicle under the rules in § 391.15;

(10) Has successfully completed a driver's road test and has been issued a certificate of driver's road test in accordance with § 391.31, or has presented an operator's license or a certificate of road test which the motor carrier that employs him has accepted as equivalent to a road test in accordance with § 391.33;

(11) Has taken a written examination and has been issued a certificate of written examination in accordance with § 391.35, or has presented a certificate of written examination which the motor carrier that employs him has accepted as equivalent to a written examination in accordance with § 391.37; and

(12) Has completed and furnished the motor carrier that employs him with an application for employment in accordance with § 391.21.

[35 FR 6460, Apr. 22, 1970, amended at 35 FR 17420, Nov. 13, 1970; 35 FR 19181, Dec. 18, 1970; 36 FR 222, Jan. 7, 1971, 36 FR 24220, Dec. 22, 1971; 45 FR 40424, July 18, 1980]

APPENDIX C

Ordinance No. - 11 - 1985

CITY OF VAN BUREN, ARKANSAS

ORDINANCE NO. - 11 - 1985

AN ORDINANCE AMENDING CHAPTER 8.08 OF
THE VAN BUREN MUNICIPAL CODE

WHEREAS, it is of vital concern to the City of Van Buren, Arkansas, that trucks and other heavy vehicles maintain proper courses along designated truck routes.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF VAN BUREN, ARKANSAS:

1. That Chapter 8.08 of the Van Buren Municipal Code is hereby amended to read as follows:

8.08.01 Truck Routes - Designated. Truck routes for all motor vehicles having a capacity of one ton and over, and proceeding through the City are hereby established and designated as follows: Interstate Highways 40 and 540, U.S. Highway 64 and Arkansas State Highways 59, 162 and 282. All such vehicles are hereby prohibited from using any other street, alley or road while proceeding through the City.

8.08.02 Penalty. Any person violating Section 8.08.01 shall be deemed guilty of a misdemeanor and upon conviction shall be fined in a sum not less than Twenty-Five Dollars (\$25.00) nor more than One Hundred Dollars (\$100.00).

8.08.03 Prohibited Streets. That it is unlawful for tractor trailers (for the purpose of this Ordinance tractor trailers shall include all motor vehicles operating with ten wheels or more), buses (to include school and church buses) tractors, any vehicle towing a trailer and also any vehicle or vehicle and trailer weighing 12,500 pounds or more to use Highway 59 traveling North or South, from the intersection of Mount Vista Boulevard and Highway 59 to Main Street in Van Buren, Arkansas.

8.08.04 Penalty. Any person violating Section 8.08.03 shall be deemed guilty of a misdemeanor and upon conviction for a first offense shall be fined a sum not less than Five Hundred Dollars

(\$500.00) nor more than One Thousand Dollars (\$1,000.00); upon conviction for a second offense such person shall be fined not less than Five Hundred Dollars (\$500.00) nor more than One Thousand Dollars (\$1,000.00) and in addition to said fine, or both, may also be incarcerated for up to thirty (30) days in jail; upon conviction for a third offense or subsequent offenses, such person shall be fined not less than Five Hundred Dollars (\$500.00) nor more than One Thousand Dollars (\$1,000.00) and in addition to said fine, or both, may also be incarcerated for up to one (1) year in jail.

8.08.05 Emergency Vehicles Excluded. All operations of firetrucks used in emergency situations operated by the City of Van Buren or other bona fide fire departments, city, local or county, are hereby excluded from the terms of 8.08.03 and 8.08.04.

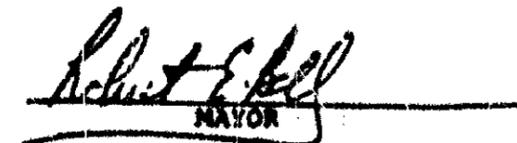
EMERGENCY:

That the safety, welfare and well-being of the inhabitants of the City of Van Buren, Arkansas, are endangered by those vehicles described as tractor trailers (all motor vehicles operating with ten wheels or more), buses (to include school and church buses), tractors, any vehicle towing a trailer, and also any vehicle or vehicle and trailer weighing 12,500 pounds or more traveling on Highway 59 North and South from the intersection of Mount Vista Boulevard and Highway 59 to Main Street in Van Buren, Arkansas, and that the immediate passage of this act is necessary in order to better control and regulate such routes which these vehicles shall use and to designate a truck route for all motor vehicles having a capacity of one ton and over and proceeding through the City of Van Buren, Arkansas, therefore an emergency is declared to exist and this act being necessary for the prevention of public peace, welfare and safety shall take effect and be in full force from and after its passage.

PASSED AND APPROVED THIS 15th DAY OF JULY, 19 85.

ATTEST:


CITY CLERK-TREASURER


MAYOR

APPENDIX D

DOWN HILL GRADE ACCIDENTS INVOLVING DEFECTIVE
OR IMPROPERLY ADJUSTED BRAKES

<u>Location/Report No.</u>	<u>Number Injured</u>	<u>Number Killed</u>	<u>Date</u>
1. Baker, California (no report number)	11	20	3-07-68
2. Bishop, California (NTSB-HAR-75-5)	1	7	6-29-74
3. Ashland, Oregon (NTSB-HAR-76-1)	3	15	5-09-75
4. Valley View, Ohio (NTSB-HAR-77-3)	15	8	8-20-76
5. Marion, North Carolina (NTSB-HAR-78-3)	3	5	5-21-77
6. Marion, North Carolina (NTSB-HAR-78-6)	3	1	1-25-79
7. Jasper, Arkansas (NTSB/HAR-81/1)	13	20	6-05-80
8. Frostburg, Maryland (NTSB/HAR-81/3)	12	3	2-18-81
9. Birmingham, Alabama (NTSB/HAR-85/03)	16	0	4-12-84
10. Wofford Heights, California (NTSB/HAR-85/01)	39	2	7-07-84
11. Eureka Springs, Arkansas (currently under investigation)	27	5	9-1385
12. Bramwell, West Virginia (currently under investigation)	30	4	10-13-85