



**SURVIVAL FACTORS  
GROUP CHAIRMAN'S FACTUAL REPORT**

**Fatal Grade Crossing Accident  
Midland, TX; 11/15/2012**

**HWY-13-MH-003  
(19 Pages)**



**NATIONAL TRANSPORTATION SAFETY BOARD  
OFFICE OF HIGHWAY SAFETY  
WASHINGTON, D.C. 20594**

**SURVIVAL FACTORS INVESTIGATION  
FACTUAL REPORT**

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**A. ACCIDENT**

**LOCATION:** At the intersection of South Garfield Street and the Union Pacific Railroad (UPRR), Mile Post 554.65, DOT grade crossing inventory #796-331L, Midland, Midland County, Texas

**VEHICLE 1:** 2006 Peterbilt truck-tractor in combination with a 2005 Transcraft Eagle Drop Deck (Flatbed) Semitrailer

**OPERATOR:** Smith Industries of Midland, Texas

**VEHICLE 2:** Union Pacific Freight Train ZLCAI-14, consisting of 4 locomotives and 84 loaded cars

**OPERATOR:** Union Pacific Railroad (UPRR)

**VEHICLE 3:** 2008 Ford Crown Victoria Police Interceptor

**OPERATOR:** Midland County Sheriff's Office

**DATE:** November 15, 2012

**TIME:** Approximately 4:35 p.m. CST

**NTSB #:** **HWY-13-MH-003**

**B. INVESTIGATOR IN CHARGE, SURVIVAL FACTORS GROUP**

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## **C. VEHICLE INFORMATION**

The accident involved a freight train that impacted a parade float at a railroad crossing. The Accident Summary is provided as a separate entry in the accident docket.

### **1. Union Pacific Freight Train**

A Union Pacific Railroad freight train with four locomotives and 84 loaded cars struck a truck-tractor in combination with a flat bed semi-trailer that was being used as a parade float with passengers seated on the flat bed.

The lead locomotive sustained damage to the right front corner a result of the collision. The engine was inspected and photographed. Biological material was evident on the right front area of the locomotive. Evidence of impact with the semi-trailer was also observed. Photographs and a 3-dimensional laser scan were used to document the damage.

### **2. Accident Truck-Tractor Parade Float**

A 2006 Peterbilt truck-tractor in combination with a 2005 Transcraft Eagle drop-deck semi-trailer (accident truck) was traveling south on Garfield Street when it was struck by an eastbound freight train<sup>1</sup>. The accident truck was being used a parade float, and had 13 rows of simple metal framed chairs strapped to the flatbed trailer using nylon ratchet tie down straps. Each row consisted of two chairs with one row on the elevated deck of the trailer and 12 rows on the lower deck. The final rest positions of the vehicles and the accident scene with the exception of the accident car and the last row of chairs on the flatbed semi-trailer were preserved until Friday afternoon, November 16<sup>th</sup>, 2012 for inspection by the NTSB.

The flatbed trailer surface was constructed of extruded aluminum rectangular section beams. The right and left edge of the flatbed consisted of a steel frame bordered by a wood plank. Approximately one foot inboard from each edge was a flat steel beam approximately 4 inches wide boarded by an approximately 3 inch wide wood plank. The material in the middle of the flatbed was the aluminum beams as previously described. The chairs were found to be positioned primarily on the right side of the trailer, with the left edge of the chairs slightly over the centerline. The chairs were butted up next to each other, and the right edge was approximately 1.5 feet from the right edge of the flatbed.<sup>2</sup>

The passenger chairs consisted of chrome plated rectangular steel frames with no arms and the seat pan and backrest were made of wood and foam with a fabric covering. The chairs were consistent with the style found in hotel conference rooms. Along with other notices, the bottom of the seat pan was marked as follows:

MFG FOR FDL, 920 W. Washington St. Alexandria, IN 46001;  
MODEL# 105-112-01-101 MADE IN CHINA;  
105 STACK CHAIR.

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<sup>1</sup> Refer to the Vehicle Factors Group Chairman's Factual Report for further vehicle information.

<sup>2</sup> Refer to the Three Dimensional Scanning Report for further information.

The tractor portion of the accident truck was not damaged. The front half of the flatbed semi-trailer had minor damage and the rear half had extensive damage. The impact damage was concentrated at the rear axle and the right rear region of the trailer. The longitudinal shape of the trailer was deformed into a bow shape due to the impact forces. The rear of the trailer was displaced laterally to the left (driver side). This displacement is visible in both the photographs and the laser scan. The trailer also exhibited damage from flying debris and from contacting roadway and traffic control structures at the scene. The damage to the accident truck was documented by photographs and the laser scan. Human biological material was found on the trailer and surrounding area. This was also documented by photographs and the laser scan. The condition of the chairs as found on the accident truck was inspected, with damage as noted in Table 1 below. The seats were numbered counting by rows starting at the front, and with seat A on the left (driver side), and seat B on the right (passenger side).

**Table 1: Passenger Seat Notes**

Row	Seat	Notes
1	A	Undamaged.
	B	Undamaged, rotated approximately 10 degrees to left.
2	A	Right-Front leg deformed to left (laterally inboard) approximately 15 degrees.
	B	Right-Front and Right-Rear deformed to left approximately 30 degrees.
3	A	Right-Front and Right-Rear deformed to left approximately 15 degrees. Tie down webbing exhibited tears adjacent to the strap and chair frame interface.
	B	Chair flipped forward, resting upside down with the backrest forward. Right-Front leg deformed to left approximately 40 degrees, Right-Rear 20 degrees.
4	A	Chair rotated forward about 30 degrees, resting on it's front legs and the strap. Right-Front leg deformed left about 10 degrees and Right-Rear leg deformed left about 20 deg.
	B	Chair resting on it's right side at about a 60 degree angle and tilted forward nearly 90 degrees, resting on its Right-Front seat pan corner and the strap. The legs were deformed to left (inward) about 15, 5, 20, 30 degrees for the Left-Rear, Left-Front, Right-Rear, and Right-Front respectively.
5	A	Right-Front and Right-Rear deformed to left approximately 10 and 5 degrees respectively.
	B	Right-Front and Right-Rear deformed to left approximately 30 degrees.
6	A	Right-Front and Right-Rear deformed to left approximately 5 degrees. Left-Front leg deformed approximately 10 degrees to the right (laterally outward).
	B	Right-Front and Right-Rear deformed to left approximately 10 degrees.
7	A	Right-Front deformed to left (laterally inboard) approximately 5 degrees.
	B	Right-Front and Right-Rear deformed to left (laterally inboard) approximately 45 degrees.
8	A	Right-Rear deformed to left (laterally inboard) approximately 5 degrees.
	B	Right-Front and Right-Rear deformed to left (laterally inboard) approximately 15 degrees.
9	A	Right-Rear deformed to left (laterally inboard) approximately 5 degrees.
	B	Right-Front and Right-Rear deformed to left (laterally inboard) approximately 15 degrees.
10	A	Right-Rear and Right-Front deformed to left approximately 15 and 10 degrees respectively. Chair was missing the seat pan cushion, which was found on the ground.
	B	Left-Rear and both the Right-Front and Right-Rear legs were deformed to left (laterally inboard) approximately 5 and 60 degrees respectively.
11	A	Right-Rear and Right-Front deformed to left (laterally inboard) approximately 30 degrees.
	B	Right-Rear and Right-Front deformed to left (laterally inboard) approximately 70 degrees. The backrest support was bent at the location below the backrest cushion support. The seat cushion was missing, and found on the ground.

12	A	Right-Rear and Right-Front deformed to left (laterally inboard) approximately 30 degrees.
	B	Chair found tilted forward nearly 90 degrees and resting on Right-Front seat pan corner and strap, with both seat pan and backrest cushions missing.
13	A	Missing, strap found at the back of the flatbed. The chair was located at the southeast corner of the Garfield and Industrial intersection, heavily deformed and missing both the seat pan and seatback cushions.
	B	Missing, strap found at the back of the flatbed. The chair was located at the southeast corner of the Garfield and Industrial intersection, heavily deformed and missing both the seat pan and seatback cushions.

Biological material in the form of blood splatter was found on the back half of the trailer and chairs, and was documented by photographs. A saturated spot of blood measuring approximately 5 inches along the lateral axis of the trailer and 10 inches along the longitudinal axis of the trailer was found next to the tie down strap near the left (driver side) edge of the trailer at row 10. A portion of the truck trailer taillight assembly was found in between rows 8 and 9, and a smaller piece of aluminum debris was found in between rows 9 and 10. The flatbed trailer had three American flags mounted via white metal flag poles along each side of the trailer. The flag poles were found on the flatbed, and the flags had been removed. Poster-board signs were taped to the sides of the trailer, and contained the name of some passengers assigned to that seat row. Some of these signs were found in place and others were either damaged or removed as documented in photographs.

### 3. Accident Sheriff Car

A Midland County Sheriff's vehicle, a 2008 Ford Crown Victoria Police Interceptor<sup>3</sup>, was involved in the accident. While the accident truck was crossing the railroad tracks, the Ford was occupied by a sheriff's deputy and stopped facing west at the intersection of Garfield Street and Industrial Avenue. The sheriff's deputy was in the car when the accident locomotive struck the accident trailer. The semi-trailer of the accident truck swung in an arc and struck the right rear (passenger side) of the accident car. The car slid through the intersection and came to rest in the southeast corner of the intersection.

The right front quarter panel, right rear door, left rear quarter panel and truck lid were damaged from the impact. The right rearview mirror was broken off and hanging by wires. The right front passenger window and the rear window were broken and the glass was found mostly in the interior of the car and with some on the pavement. The right rear tire and wheel were damaged and the tire was deflated. The right rear portion of the back seat exhibited signs of deformation from the inward displacement of the right rear passenger door and C-pillar. The right rear C-pillar interior molding was separated from the headliner. The interior contained glass but no occupant contact marks or biological material were evident.

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<sup>3</sup> Reference the Vehicle Group Chairman's Factual Report for further vehicle information.

#### 4. Lead Combination Unit Parade Float

There was a similar combination unit parade float in front of the accident truck. This vehicle was not involved in the accident, but some of the passengers from this float had a significant role in first aid and assistance with the first response. The vehicle was not inspected, but information about the passengers and their role in the first response was collected.

#### D. OCCUPANT INJURY SUMMARY

A total of 28 people were involved in the accident. The injury severity for the occupants of the various accident vehicles is provided in Table 2, and a seating chart depicting the gender, age, and injury severity of the accident truck occupants is provided in Figure 1. The injury levels are defined according to Title 49 CFR 830.2.<sup>4</sup> Detailed medical information is provided in Section C.

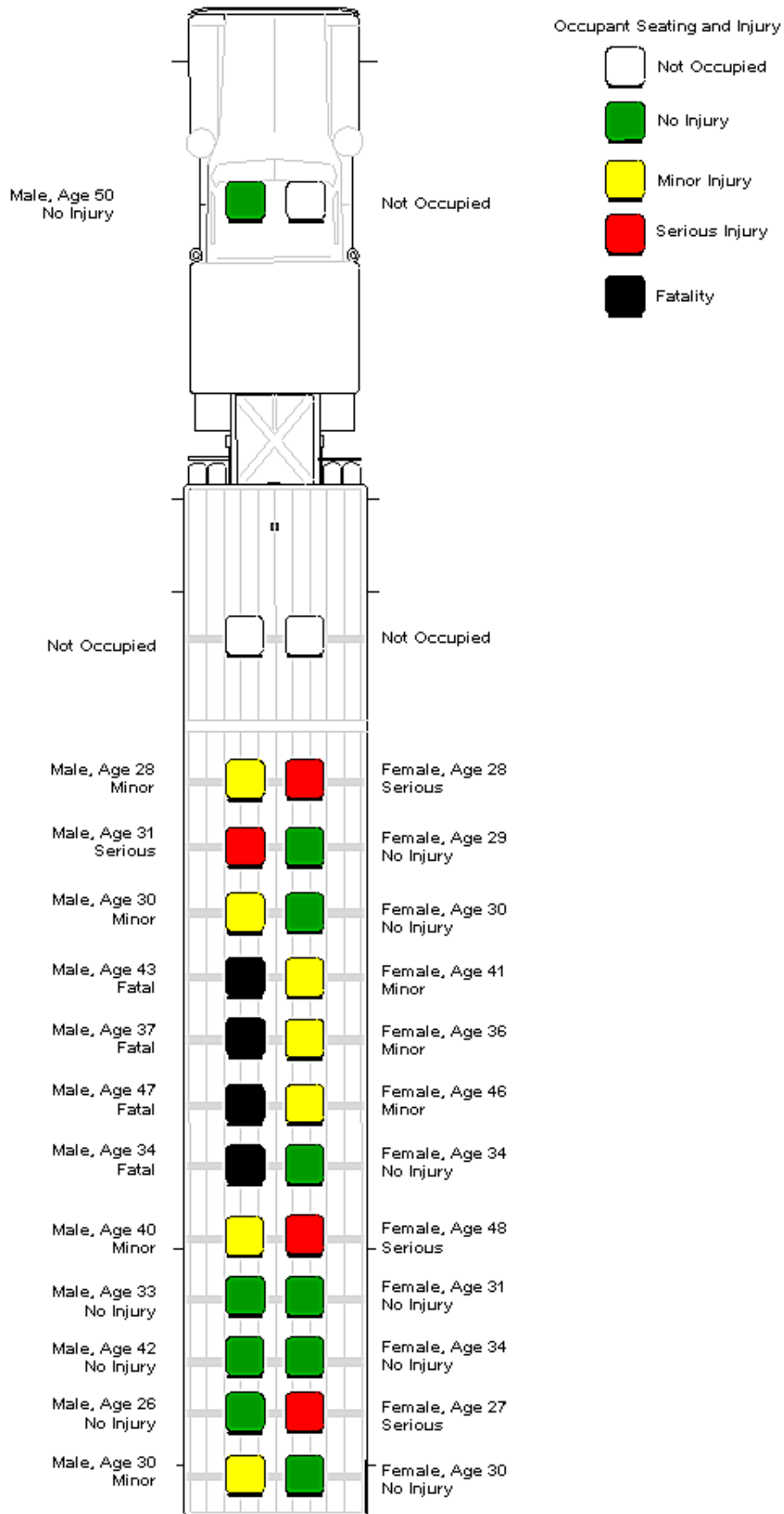
**Table 2: Occupant Injury Severity**

Vehicle	Uninjured	Minor	Serious	Fatal
Train Crew	2	0	0	0
Truck Driver	1	0	0	0
Semi-Trailer	9	7	4	4
Patrol Car	0	1	0	0
Total	12	8	4	4

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<sup>4</sup> Title 49 CFR 830.2 defines a fatal injury as: any injury that results in death within 30 days of the accident. A serious injury as: an injury which requires hospitalization for more than 48 hours commencing within seven days from the date the injury was received; results in a fracture of any bone (except simple fractures of the fingers, toes, or nose); causes severe hemorrhages, nerve, muscle, or tendon damage; involves any internal organ; or involves second or third degree burns, or any burns affecting more than 5 percent of the body surface.

**Figure 1: Accident Truck (Parade Float) Seating Chart**



## **E. MEDICAL INFORMATION**

### **1. Union Pacific Freight Train**

The accident lead locomotive was occupied by 2 crew members, and the other 3 locomotives were not occupied. The occupants of the freight train were not injured. The locomotive exhibited impact damage on the front plow and the front right side staircase.<sup>5</sup>

### **2. Accident Truck Tractor Parade Float**

The accident truck had a driver and 24 passengers seated on the flatbed semi-trailer. Detailed injury information was obtained from the medical records and autopsy reports, and is summarized for each of the occupants below.

#### Accident Truck Driver

The truck driver was male, aged 50 years, and weighed 180 lbs. He was admitted to Midland Memorial Hospital West Campus on November 15, 2012 at 6:37 pm and discharged the same day at 10:14 pm. The driver was not injured and a psychiatric evaluation was done. Blood was drawn at 7:18 pm, placed it in a vacuum container, and given to a Midland police officer.

#### Seats 1A

Seat 1A was not occupied.

#### Seat 1B

Seat 1B was not occupied.

#### Seat 2A

The male occupant of seat 2A was 28 years old and suffered minor injuries. He was transported to Midland Memorial Hospital by ambulance and admitted on November 15, 2012 5:46 pm and discharged the same day at 8:34 pm. He had a left wrist laceration and pain in right wrist with no new fractures. His medical records indicated a previous right wrist and forearm fracture.

#### Seat 2B

The female occupant of seat 2B was 28 years old and suffered serious injuries. She was transported to Midland Memorial Hospital by ambulance and admitted on November 15, 2012 6:01 pm and discharged on November 16, 2012 at 7:55 pm. She suffered a closed fracture of the pelvis (sacrum); a closed and displaced fracture of the right clavicle; a right arm fracture; a left elbow fracture, and an un-displaced fracture of the left radial neck.

#### Seat 3A

The male occupant of seat 3A was 31 years old and 5 feet 9 inches tall, and weighed 220 lbs. He suffered serious injuries. He was transported to Midland Memorial Hospital by ambulance and admitted on November 15, 2012 at 5:05 pm and discharged on November 28, 2012 at 9:27 am. He suffered a T12-L1 fracture and dislocation with severe compromise to the

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<sup>5</sup> Refer to the Rail Chairman's Factual report for further train information.



spinal canal; a large hematoma above the fascia over the lumbar spine that extended into the right pelvic region. Past surgical history indicated a gunshot wound to the right arm while serving in the military, with radial nerve damage.

#### Seat 3B

The Female seated in 3B was 29 years old and was not injured.

#### Seat 4A

The male occupant of seat 2A was 30 years old, 5 feet 8 inches tall, and weighed 180 lbs. He suffered minor injuries. He was transported to Midland Memorial Hospital by ambulance and admitted on November 15, 2012 6:36 pm and was discharged on November 16, 2012 at 1:06 am. He suffered back pain in the mid to lower thoracic back and abdominal pain.

#### Seat 4B

The female occupant of seat 4B was 30 years old and not injured.

#### Seat 5A

The male occupant of seat 5A was 43 years old and 5ft 11 inches tall and 211 lbs. He suffered fatal injuries. The Tarrant County Medical Examiner's office performed an autopsy and attributed his death to blunt force trauma of chest, abdomen, head. Injuries included multiple rib fractures, laceration of the aorta with hemothorax, patchy lung contusions, small laceration of liver; contusion of pancreas, and subarachnoid hemorrhage.

#### Seat 5B

The Female occupant of seat 5B was 41 years old, 5 feet 3 inches tall and weighed 120 lbs. She suffered minor injuries and was admitted to Midland Memorial Hospital on November 15, 2012 at 5:18 pm, and discharged on the same day at 8:15 pm. Her injuries were an abrasion on the right hand.

#### Seat 6A

The male occupant of seat 6A was 37 years old, 5 feet 11 inches tall, and 180 lbs. He suffered fatal injuries. The Tarrant County Medical Examiner's office performed an autopsy and attributed his death to blunt force trauma of the head and neck, chest, and extremities. Injuries included a cervical spinal fracture of the C1 and C2 vertebra, spinal cord transection and transection of the vertebral and carotid arteries, left internal jugular vein, and left vagus nerve; multiple rib fractures with hemothorax and rupture of the pericardial sac; transection of the thoracic aorta, patchy lung contusions with aspiration of blood, and intercostals soft tissue hemorrhage.

#### Seat 6B

The female occupant of seat 6B was 36 years old, 5 feet 1 inches tall, and 117 lbs. She suffered minor injuries and was admitted to Midland Memorial Hospital on November 15, 2012 at 5:41 pm and discharged the same day at 8:38 pm. Her injuries included pain in left elbow and left ankle, and an elbow abrasion and an ankle sprain.

#### Seat 7A

The male occupant of seat 7A was 47 years old, 5 feet 8 inches tall, and 214 lbs. He suffered fatal injuries. The Tarrant County Medical Examiner's office performed an autopsy and

attributed his death to blunt force trauma of the head, chest, and extremities. His injuries included massive open and basilar skull fractures with cerebral and brainstem lacerations and intra and extra cranial hemorrhage; patchy lung contusions with minimal aspiration of blood; intercostals soft tissue hemorrhage.

#### Seat 7B

The female occupant of seat 7B was 46 years old and 5 feet 3 inches tall. She suffered minor injuries and was admitted to Midland Memorial Hospital on November 15, 2012 at 5:35 pm and discharged on the same day at 8:32 pm. Her injuries included pain to the lower back, buttock, left hip and left knee.

#### Seat 8A

The male occupant of seat 8A was 34 years old, 5 feet 8 inches tall, and 248 lbs. He suffered fatal injuries. The Tarrant County Medical Examiner's office performed an autopsy and attributed his death to blunt force trauma of the head, chest, and abdomen. His injuries included multiple rib fractures with small hemothorax; patchy lung contusions; massive laceration of spleen with small herroperitoneum.

#### Seat 8B

The female of seat 8B was 34 years old and was not injured.

#### Seat 9A

The male occupant of seat 9A was 40 years old, 6 feet 1 inches tall, and 225 lbs. He suffered minor injuries and was admitted to Midland Memorial Hospital on November 15, 2012 at 7:43 pm and discharged on November 16, 2012 at 3:45am. His injuries included lower back pain and muscle strain.

#### Seat 9B

The female of seat 9B was 48 years old, 5 feet 5 inches tall, and 250 lbs. She suffered serious injuries and was admitted to Midland Memorial Hospital on November 15, 2012 at 5:03 pm, and discharged on November 19, 2012 at 2:14 pm. Her injuries included a traumatic near amputation of the leg in the hip region. Her left lower leg had significant soft tissue loss below the knee with a distal tib-fib fracture in at least 3 places. The foot was dysvascular and the groin had a large massive laceration with exposed profunda femoris artery. She had massive muscular injury with a massive femur fracture. She had a severe open book pelvic fracture. She had facial lacerations and a laceration to the right foot and a supracondylar right femoral fracture.

#### Seat 10A

The male occupant of seat 10A was 33 years old and not injured.

#### Seat 10B

The female occupant of seat 10B was 31 years old and not injured.

#### Seat 11A

The male occupant of seat 12A was 42 years old and not injured.

#### Seat 11B

The female of seat 11B was 34 years old, 5 feet 8 inches tall and 190 lbs. She suffered minor injuries and was transported to Midland Memorial Hospital by ambulance. She was admitted on November 15, 2012 at 5:41 pm and discharged the same day at 7:50 pm. Her injuries included back strain and a pulled muscle.

#### Seat 12A

The male occupant of seat 12A was 26 years old and not injured.

#### Seat 12B

The female occupant of seat 12B was 27 years old, 5 feet 2 inches tall and 185 lbs. She suffered serious injuries and was admitted to Midland Memorial Hospital on November 15, 2012 at 5:03 pm and discharged on November 17, 2012 at 3:00 pm. Her injuries included a fracture of the right L4 transverse process and a head laceration, 3cm superolateral to the right orbit with right maxillary contusion.

#### Seat 13A

The male of seat 13A, was 30 years old, 6 feet tall and 265 lbs. He suffered minor injuries and was transported by ambulance to Midland Memorial Hospital. He was admitted on November 15, 2012 at 5:44 pm and discharged the same day at 8:11 pm. His injuries included a right foot swollen under the ankle and pain to the forefoot along the navicular cuneiform area. The medical records indicated a possible midtarsal fracture, but noted that the x-ray was not clear enough for a diagnosis and noted that a CT scan may be required at a later date. Previous history indicated a partial right rib removal.

#### Seat 13B

The female occupant of seat 13B was 30 years old and not injured.

### **3. Accident Car**

The 2008 Ford Crown Victoria Police Interceptor was occupied by a 38 year old female sheriff's deputy. The deputy sustained minor injuries in the accident. The deputy described the circumstances and the extent of the injuries as a sprained left wrist and bruising along the left arm due to the impact sustained by the vehicle. She was admitted to the Midland Memorial Hospital West Campus on November 15, 2012 at 5:53pm and discharged the same day at 7:20pm.

### **4. Lead Combination Unit Parade Float**

The occupants of the lead truck tractor and float were not involved in the accident, but some participated in the first response and assistance of accident victims. Some passengers from the lead parade float gave statements to the Midland Police, which are given in Section D. One passenger from the lead parade float, a 38 year old female was admitted to Midland Memorial Hospital on November 15, 2012 at 5:35 pm and discharged on same day at 7:06 pm for treatment of anxiety and a panic attack.

## **F. LAW ENFORCEMENT INFORMATION**

Three law enforcement agencies were involved with the accident investigation, all of which had representatives participating in the parade. The primary and investigating agency was the Midland Police Department (MPD). The Midland County Sheriff Office (MCSO) and the Texas Department of Public Safety (DPS) were also involved.

### **1. Investigation Reports**

The preliminary *Midland Police Department Accident Report* was obtained and is provided in Attachment 1. The *Midland County Sheriff Office Law Incident Table and the Information Report Train Collision* were obtained and are provided in Attachment 2. The Texas DPS was contacted and indicated that they were not the investigating agency and that they were involved with traffic control assistance and provided a helicopter for aerial photographs of the accident scene. Aerial photographs are available in the accident docket. The US Army Special Traffic Investigator from Ft Bliss Texas prepared a military police report because some of the accident truck passengers were active duty soldiers. This report was obtained and is provided in Attachment 3.

### **2. Emergency Management**

The Emergency Management Center (EMC) for Midland County was located at the Midland Police Department and includes the 911 call and dispatch center. The Emergency Management Coordinator was contacted. He coordinates with the board of directors which includes the mayor, the county court judge and a representative from each of the following areas:

- Midland Police Department,
- Midland Fire Department and EMS (MFD),
- Midland City and County Health Department,
- Emergency Communications,
- Airport.

The EMC indicated that each agency has Standard Operating Procedures and the coordinator must be notified of any changes. A copy of the procedures was requested. A copy of the State Emergency Management and FEMA plans as well as the Midland County After Action Report were requested. The EMC also described training activities. The last major training operation was the 2012 Airport Disaster Drill which occurred on June 16, 2012. It was a very large training operation and involved many of the local agencies. The After Action (Training) Report was obtained and is provided in Attachment 4.

Radio communications included different frequencies used by various agencies plus mutual aid channels operated by the state and national systems. There was also an inter-operable system which began about 3 or 4 years ago and covered a 17 county region. The system was reported operational but some agencies have yet to convert over to the new equipment.

### **3. 911 Call Center and Dispatch Center**

The Emergency Communications Board Member provided information about the call center located at the Midland Police Department. The call center has simultaneous dispatch for the Midland Police Department, Midland Fire Department, Midland County Sheriff Department, and Midland Memorial Hospital. The call log begins at the time when the operator opens a new notification and begins adding information. The Midland County Sheriff Office has a different Computer Aided Dispatch (CAD) system, but is linked to the MPD. The Texas DPS had a completely separate system.

This accident event was initiated by a Sheriff Deputy (CCD5) Unit 306. This radio call preceded the first 911 calls which came in soon after. The notification was created at 4:36:04 pm and entered at 4:36:15 pm. Dispatch occurred at 16:37:09 and units were listed as enroute and on scene at 16:37:31. The actual event had law enforcement vehicles on scene immediately, as evident by the Sheriff unit which was involved in the accident. Detailed information is available from the Midland Police and Midland Fire Department incident history reports in Attachments 5 and 6 respectively.

The call center has a master clock which used the Spectracom system to synchronize via satellite to Universal Time Coordinates (UTC). All the computer servers at the center had a serial connection to this clock and are updated using the software program Present Tense. The MPD in-car video cameras were also synchronized to the same computer system. The in-car video cameras for the Sheriff Office used a satellite clock system that was part of the Panasonic Arbitrator system.

### **G. FIRE AND EMS INFORMATION**

A large variety of fire and Emergency Medical Services (EMS) equipment was nearby due to vehicle participating in the parade or at the nearby fairgrounds, the intended destination of the parade. The emergency management coordinator was at the fairgrounds and on the phone with a police officer who was at the parade at the time of the accident. Consequently the emergency management coordinator heard about the accident essentially in real time, and immediately informed the fire and EMS personnel that were on hand at the fairgrounds. The responders self dispatched to the scene. Portions of the first response were captured on various video cameras in operation at the time of the accident. First response information obtained from the video data is provided in section 1 below.

Two male passengers were pronounced dead at the scene, and two others were pronounced dead at Midland Memorial Hospital. A total of 13 other passengers from the semi-trailer were transported to Midland Memorial Hospital, and then one was flown to the University Medical Center in Lubbock Texas. The 12 remaining semi-trailer passengers at Midland Memorial Hospital consisted of 4 who were admitted with serious injuries and 8 who were treated and released.

The first responders were interviewed at the Midland Fire Department, Midland Central Fire Station, 1500 Wall St. West, Midland TX, on November 19, 2012. The fire chief provided a list of the equipment used during the accident and an event timeline, as given in Attachment 7.

The first responders were organized into groups based on the equipment they were manning at the time of the accident. A summary of the information obtained is provided in sections 2 and 3.

## 1. First Responder Information from Video Recordings

Video recordings from various sources were collected as evidence during the investigation. These videos were reviewed for information pertinent to survival factors, as described in this section.

### 1.1 Train and Ford Crown Victoria Videos

The accident and aftermath was captured in video recordings from the accident train and a Sheriff's vehicle, and is documented in factual reports from the NTSB vehicle recorders division.<sup>6</sup> Events pertinent to survival factors and the emergency response were extracted and are provided in Table 3. Further information is available in the Video Factual Report located in the accident docket.

**Table 3: Survival Factors and Emergency Response Events from Video Documentation**

1602	Parade is underway from downtown Midland
1618:35	Accident flatbed transits intersection with blinking yellow signal
1619:29	Steady yellow ~22 mph
1627:45	Accident flatbed turns left on to Garfield Street with law enforcement vehicles blocking traffic. Sun is now coming from the right. Both flatbeds move from 2 <sup>nd</sup> from right lane to 3 <sup>rd</sup> from right lane
1632:50	Police cruiser passes procession on the far left side of the roadway, camera vehicle up to 5-7 mph, flatbed spacing increases
1634:48	Procession approaches Front Street. Law enforcement vehicle stopping traffic on left, Escorting law enforcement vehicle on right stops traffic on right before continuing through Front St intersection at 1635:01
1635:15	Red traffic signal for northbound Garfield Street traffic at Industrial Street comes into view. Unmarked police car is preventing traffic from turning on to northbound Garfield Street
1635:21	Camera vehicle comes to stop prior to crossing arm. The accident tractor passes a bump, consistent with front axle of accident vehicle crossing north rail.
1635:24	Crossing arm contacts first flag on the right side of the flatbed.
1635:25.3	Rear tractor wheel crosses over south rail
1635:27	First person jumps off rear off flatbed, others follow off of rear and right side of flatbed
	One person of left rear of flatbed, 6 or 7 people off right side of flatbed, 5 people end up on the north side of the crossing
1635:27	Camera vehicle moves forward a few feet
1635:30.9	Flatbed rear wheel crosses north rail
1635:31.8	Impact ~63 mph
1635:51	First sheriff's car (lead float escort) arrives on scene.

<sup>6</sup> NTSB Office of Research and Engineering Video Factual Report, available in the accident docket.

1636:33	Four Midland PD cars arrive on scene (3 cars, 1 pickup)
1636:46	Train comes to stop. Several passengers from lead float respond and bring blankets to the accident site
1637:00	Four officers and bystanders climb over coupling between two train cars
1637:32	Northeast volunteer fire unit arrives on scene northbound on Garfield Street
1637:35	Unmarked gray police pickup truck arrives on scene
1637:50	Several responders and bystanders are holding their hands/arms to block sunlight, shadows are nearly exactly parallel to crossing arm from southwest to northeast
1639:08	Unmarked police car arrives on scene westbound on Industrial Street
1640:08	Green fire truck, marked E-2, arrives on scene northbound on Garfield Street
1640:23	Unmarked police car and white ambulance arrive on scene northbound on Garfield Street. Ambulance parks at southwest corner of intersection of International and Garfield Streets
1640:35	Two bags that appear to be medical supplies are given to an officer and passed to the far side of the train
1640:38	Fire marshal arrives on scene
1643:45	Sherriff unit arrives on scene and parks next to the lead float
1644:03	Patient loaded aboard ambulance parked at southwest corner of intersection of International and Garfield Streets
1644:58	Two red ambulances arrive on scene eastbound on Industrial Street
1645:13	White ambulance arrives on scene westbound on Industrial Street
1646:31	White ambulance that arrived at 1640:23 begins backing up southbound on Garfield Street
1646:43	White ambulance arrives on scene eastbound on Industrial Street
1647:41	White ambulance that arrived at 1640:23 turns and leaves the scene southbound on Garfield Street
1648:33	One of the red ambulances moves on to Garfield Street
1652:45	White ambulance that arrived at 1645:13 leaves the scene eastbound on Industrial Street
1653:17	Patient is loaded into red ambulance
1653:19	White ambulance at southeast corner of intersection of International and Garfield Streets leaves the scene eastbound on Industrial Street
1653:32	Red ambulance that arrived at 1644:58 leaves the scene eastbound on Industrial Street

## 1.2 Witness Video

A video recorded by a witness shortly after the accident was recovered by the Midland County Sherriff's office and reviewed for survival factors or emergency response information. This video was recorded using a hand held camera and for a duration of 9 minutes and 53 seconds. The following notes are referenced from the time at the start of the recording.

- 0.0 seconds: Witness approached accident scene on the south side of the train. The train was moving through the intersection. The front of the accident truck was visible and approximately 7 people were in frame on the south side of the tracks and west of the

accident truck. The obstructed view west of the accident truck had approximately 2 people in the vicinity of the flatbed.

- 10.0 seconds: The witness has walked closer to the tracks with only the rear wheels of the accident truck visible on the right of the frame. There were approximately 15 people visible on scene. The 15 people included a victim being attended to near the point of impact, and 3 other victims between the tracks and the accident truck.

## **2. EMS Units**

### EMS 1

EMS unit 1 approached the scene going south down Garfield Street and arrived at the north side of the tracks. The responders identified a female victim with severe leg injuries as the most critical living patient. They treated the victim with help from civilians and the victim's husband who assisted with a belt tourniquet. The responders then confirmed one of the deceased and then assisted other patients.

### EMS 2

This unit was at Midland Memorial Hospital and dispatched from this location, and arrived on the north side on Midkiff Road. They were delayed from traffic at Garfield and Front Street. On scene, they assisted loading more critical injured people to ambulances. After this, they transported two patients with minor injuries to the hospital and then returned to the scene. They transported the driver to Midland Memorial West Campus.

### EMS 3 and Personal Vehicle

EMS three was at the honor guard at the fairgrounds. The Emergency Management Coordinator told them of the accident and several people rode in EMS 3 while others took a private vehicle to the scene. EMS 3 headed down Garfield and arrived at the southwest corner of Industrial on the south side. They started triage and started numbering patients. They noted that police cars were blocking access and were moved. EMS 3 eventually transported people to the hospital. The responders from the honor guard did not have personal radios because they were off duty.

The responders in the personal vehicle arrived on the south side and assisted with triage. They noted that EMS 3 made two trips to the hospital, first it transported a patient who died enroute and second it transported 4 other patients with minor injuries.

### EMS 6

EMS 6 was dispatched from the hospital and passed the show cars on the way into the scene, and approached on Front Street. The police vehicles were blocking access and so they had to clear some of the police cars. This was difficult because some cars were unoccupied and without keys. They parked at the southeast corner. They confirmed one fatal patient and loaded one serious patient (with back injuries) as well as another who died en-route.

### EMS 8

EMS 8 was at the hospital when dispatched and approached from Garfield St. They were about the 4<sup>th</sup> EMS vehicle on scene. They transported the seriously injured female with the leg



injuries. EMS 8 asked the transportation officer if there were any other critical patients. They were transporting the woman with the leg amputation and delayed transport because they were instructed to hold for other patients. They asked if they could go and were then permitted to leave for to the hospital.

### EMS 9

EMS 9 was at a structural fire and pulled out before they heard the dispatch mass casualty call. They approached on the south side and there were one or two other EMS vehicles already on scene. They brought back boards. They saw a patient tagged yellow first and when they got to him he had died. They contacted the incident commander for instructions and helped load one patient tagged as yellow. They then helped with the seriously injured female patient who was flown to Lubbock. They also loaded a patient with a facial injury and back pain.

## **3. Engines and Other Units**

### Engine 1

Engine 1 was at a structure fire. The battalion chief released them from the scene and they heard the code dispatch mass casualty call. They self dispatched and arrived at the south side and parked a ways back in the turn lane to avoid blocking traffic. They helped package patients and were finished quickly. They helped police control the crowd. They noted that veterans from the first parade float helped package and load patients. One of the crew stayed with the victims that were taken to the Hilton and helped keep the headcount.

### Truck 1 and 3

They were at the fairgrounds to hold the flags and then were notified by the Emergency Management Coordinator of the accident. They arrived on the south side, down one block on Garfield. They helped load the last patient and assisted the non-injured and minor injured in the parking lot. They also assisted with communications. An uninjured holding area was set up in the parking lot of the Consolidated Electronics business.

### Engine 2

Engine 2 arrived at the south side of the tracks and had the first incident commander. They noted that there was a lot of confusion and the scene was mobbed by bystanders. The incident commander estimated the number of victims and called for code 1000 which was the mass casualty call. They noted that EMS 3 was the first EMS unit on the south side and had the EMS incident commander. They identified the next incident commander, who was a fire chief. They handed off incident command about the time everyone was transported. They noted that EMS 3 was assigned triage and noted the responder who was assigned to be the transport officer. The staging area was set up in the southwest corner of Garfield and Industrial. After everyone was transported they conducted a critical incident stress management review on scene.

The other responder in Engine 2 brought medical bags and started triage. He saw one patient under the trailer and a person with him. That patient seemed okay so he went to the next patient. This patient was triaged red and died on route to the hospital. He noted that the scene was congested and that they had to clear a path for ambulances to get through. They noted that communication was face-to-face on scene. They noted that dispatch, EMS and fire were on channel 4 the ER and the hospital were on channel 5.

### Squad 5

Squad 5 was on a structural fire and the battalion chief told them to clear and respond to the accident. They approached on Midkiff Road on the south side. Upon arrival they helped package and load patients.

### Engine 6

Engine 6 was out of service and the Captain was back at the station when he heard the call so he drove it to the scene without a crew. He approached from the south side and parked on Industrial behind Squad 5. He found the incident commander and was asked to take over staging. Triage was done when he got there and he noted that within 15 minutes all red and yellow triaged patients were transported. He then helped the incident commander with the passenger list. He noted that he had heard there was a logjam with police cars but that when he arrived it was sorted out.

### U602

They heard the mass casualty dispatch call and when this unit had the fire chief who took over incident command and set up a command post on the southwest corner. He noted that communication was face to face. The ambulances were lined up and triage was complete when he arrived. He noted that while he was still enroute, dispatch asked if mutual aid was needed. He said yes and asked them to send two ambulances from Odessa. He spoke to the transportation officer, who, at the time was holding EMS 8 with the woman with the leg injuries and he authorized its release. There were other green patient's transported later. He noted that the first wave transported 8 patients, and the second wave transported 7 patients, with 15 total transported to hospitals. He also noted that some people were transported in personal vehicles. The other Chief arrived on scene after last ambulance had departed. He contacted the police chief on scene, and then helped obtain information for the media and handled logistics such as lighting the scene.

### U604

The chief of the training division was at a house fire and then responded to the call in unit 604. Upon arrival he helped one patient onto a stretcher as well as another green patient. He had contact with the accident truck driver, and asked if he had a list of the people on the truck. He noted that the truck driver just kept repeating that he did not see the train, or that he did not know there was a train.

### U605

The district chief of training was at a structural fire and heard the mass casualty dispatch call. He heard that most activity was on the south side and thought he should check the north side. On the north side he did not find any injured and so he crossed over the train to the south side. He assisted with packaging and loading victims.

### Patrol Car

A fire department inspector was at the honor guard at the fairgrounds he heard about the accident and used a patrol car to go to the accident site. He arrived on the south side, and parked in a parking lot. He saw the first patient who was at the southeast corner and appeared deceased. He noted that the victim had appeared to hit the curb after being thrown about 75 -100 feet. The next patient he saw had back injuries. They retrieved a back board and collar. He rode with EMS 3 which transported a male who died at the hospital. They returned to the scene and spoke to the

transportation officer. They then took a headcount of the survivors on the float and set up a temporary aid station at the Consolidated Electrical Services business. He called the Hilton for a bus to transport people so that the police could do interviews.

## **H. OCCUPANT INTERVIEWS AND WITNESS STATEMENTS**

Police statements collected on scene and at the hospital the day of the accident were obtained in audio file format from the MPD. The audio tapes were reviewed and summarized. Interviews at the hospital were also conducted in the days after the accident. The notes are intended to summarize the information pertinent for the survival factors investigation, and are not intended to represent an exact transcript.

The passengers that provided statements to MPD were: Passengers: 2A, 3B, 4A, 4B, 9A, 10A, 10B, 12A, 12B, 13A, 13B. Statements from an additional 30 witnesses were also taken. Interviews from 3 of the passengers (3A, 3B, and 9A) were taken at the hospital. All of these statement and interview notes are provided in Attachment 8.

### **Documents included in accident docket:**

Attachment 1: Midland Police Department Preliminary Report  
Attachment 2: Midland County Sheriff Information  
Attachment 3: US Army Report  
Attachment 4: Airport Training After Action Report  
Attachment 5: Police Incident Report  
Attachment 6: Fire/EMS Incident Report  
Attachment 7: Fire/EMS Equipment List and Timeline  
Attachment 8: Statements and Interviews

Photograph 1: Accident Scene looking from Northwest aerial (IMG\_1835, Texas DPS)  
Photograph 2: Accident Scene looking from South aerial (IMG\_1841, Texas DPS)  
Photograph 3: Accident Trailer view from bucket and from Southwest (TMB\_3506, MPD)  
Photograph 4: Accident Scene view from bucket and from West (TMB\_3520, MPD)  
Photograph 5: Exemplar Train and Truck at Impact from Southeast (DSCN4173, Barth)  
Photograph 6: Exemplar Train and Truck at Impact from Northeast (DSCN4180, Barth)  
Photograph 7: Row 13 Chairs at Scene (P1000231, Barth)  
Photograph 8: Accident Truck from Southeast (P1000241, Barth)  
Photograph 9: Accident Truck from East (P1000244, Barth)  
Photograph 10: Accident Truck from NW (P1000263, Barth)  
Photograph 11: Accident Train Right Front (P1000281, Barth)

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End of Report