



National Transportation Safety Board

ANNUAL REPORT

to Congress



2011 ANNUAL REPORT

NTSB/SPC-12/04



**National
Transportation
Safety Board**

A Message from the Chairman of the NTSB



Deborah A.P. Hersman
Chairman

I am pleased to present the 2011 Annual Report to Congress for the National Transportation Safety Board (NTSB). Recognized internationally for our accident investigation expertise, the NTSB has been in the forefront of transportation safety for over 40 years. In our history, we have investigated more than 140,000 aviation accidents and thousands of surface transportation accidents, and issued more than 13,500 safety recommendations. The 2011 Annual Report presents the agency's work over the last year, providing details of completed and ongoing investigations, safety recommendations, family disaster assistance activities and emerging issues.

2011 was a very productive year for the NTSB, and we are working as a team to advance our transportation safety mission with accountability, integrity and transparency. Demonstrating our commitment to accountability, we completed several major accidents reports within approximately one year of the accident date, which included a massive pipeline explosion in San Bruno, California, collision between a tour boat and barge in the Philadelphia, Pennsylvania harbor, and the airline collision in Aleknagik, Alaska. In addition to responding to accidents and issuing safety recommendations, we undertook activities to impart lessons learned from our investigations and raise awareness of emerging safety issues including distracted driving, airline safety and motorcoach safety. To that end, in 2011, we held public forums and conferences on airbags in general aviation accidents, family assistance, bus and truck safety, airline fuselage structural integrity, and public aircraft operations.

Beyond the agency's domestic work, we continued our safety role abroad, providing technical expertise to our international partners, participating in foreign accident investigations, as well as holding a public forum to address our current and future role in international investigations. These activities help drive further safety improvements in US products and services, and encourage reciprocal support from our foreign partners when foreign equipment or foreign carriers are involved in accidents in the US.

We hope you find the 2011 Annual Report to Congress to be an informative presentation of the agency's accomplishments during 2011.

Sincerely,

A handwritten signature in black ink, appearing to read 'D. Hersman', with a long horizontal flourish extending to the right.

Deborah A.P. Hersman
June 1, 2012



Foreword

The National Transportation Safety Board (NTSB) is an independent agency charged with determining the probable cause of transportation accidents and promoting transportation safety. The NTSB investigates accidents, conducts safety studies, evaluates the effectiveness of other government agencies' programs for preventing transportation accidents, and reviews the appeals of enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and the U.S. Coast Guard (USCG), as well as the appeals of civil penalty actions taken by the FAA.

To help prevent accidents, the NTSB develops safety recommendations, based on its investigations and studies, which are then issued to Federal, state, and local government agencies, industry, and other organizations in a position to improve transportation safety. The recommendations are the focal point of the NTSB's efforts to improve the safety of the nation's transportation system.

The NTSB's origins can be found in the Air Commerce Act of 1926, in which the U.S. Congress charged the U.S. Department of Commerce with investigating the causes of aircraft accidents. Later, that responsibility was given to the Civil Aeronautics Board's Bureau of Aviation Safety.

In 1967, Congress consolidated all transportation agencies into a new U.S. Department of Transportation (U.S. DOT) and established the NTSB as an independent agency placed within the U.S. DOT for administrative purposes. In creating the NTSB, Congress envisioned that a single organization with a clearly defined mission could more effectively promote a higher level of safety in the transportation system than the individual modal agencies working separately. Since then, the NTSB has investigated accidents in the aviation, highway, marine, pipeline, and railroad modes, as well as accidents related to the transportation of hazardous materials.

In 1974, Congress separated the NTSB from the U.S. DOT, reasoning that "...No Federal agency can properly perform such (investigatory) functions unless it is totally separate and independent from any other...agency of the United States." Because the U.S. DOT has broad operational and regulatory responsibilities that affect the safety, adequacy, and efficiency of the transportation system, and transportation accidents may suggest deficiencies in that system, the NTSB's complete independence was deemed necessary for proper oversight. The NTSB, which has no authority to regulate, fund, or be directly involved in the operation of any mode of transportation, conducts investigations and makes recommendations from an objective viewpoint.

In 1996, the NTSB was charged with the additional responsibility of coordinating Federal assistance to families affected by a major aviation accident. This action was followed by the passage of the [Foreign Air Carrier Family Support Act in 1997](#) and the [Rail Passenger Disaster Family Assistance Act in 2008](#). While the agency's Transportation Disaster Assistance program was originally authorized to provide assistance following major aviation accidents, family

assistance staff routinely assist investigative staff on launches to accidents in all modes of transportation in an effort to provide assistance to victims and their families.

In 2000, the agency embarked on a major initiative to increase employee technical skills and make its investigative expertise more widely available to the transportation community by establishing the NTSB Academy. The Virginia campus of the George Washington University was selected as the Academy's home, and occupancy of the new facility began in August 2003. On October 1, 2006, the name of the NTSB Academy was changed to the NTSB Training Center to better reflect the internal training aspects of the facility.

Since its inception, the NTSB has investigated more than 140,000 aviation accidents and thousands of surface transportation accidents. On call 24 hours a day, 365 days a year, NTSB investigators travel throughout the country and to every corner of the world to investigate significant accidents and develop factual records and safety recommendations with one aim—to ensure that such accidents never happen again.

To date, the NTSB has issued over 13,500 safety recommendations involving aviation and surface transportation to more than 2,500 recipients in the Federal and state sectors. Because the NTSB has no authority to regulate the transportation industry, its effectiveness depends on its reputation for conducting thorough, accurate, and independent investigations and for producing timely, well-considered recommendations to enhance transportation safety.

In 2011, the NTSB continued to push for safety improvements as 202 recommendations were officially closed, 146 with an acceptable status. The average acceptance rate for safety recommendations from 2007 to 2011 was 78 percent. Another 212 recommendations were issued in 2011: 95 aviation, 48 highway, 27 marine, 10 railroad, and 32 pipeline recommendations.

Mission

The NTSB's mission is to promote transportation safety by

- maintaining our congressionally mandated independence and objectivity;
- conducting objective, precise accident investigations and safety studies;
- performing fair and objective airman and mariner certification appeals; and
- advocating and promoting safety recommendations;
- And to assist victims of transportation accidents and their families.

Values

The NTSB embraces the values of **transparency**, **accountability**, and **integrity**. We are committed to these values every day and in every way.





NTSB 2011 at a Glance

Accident Launches

Major Accident Launches	8
Regional/Field Accident Launches	321
International Accident Launches	8

Major Reports and Products Adopted by the Board

Major Reports	15
Accident Briefs	1476

Recommendations

Recommendations Issued	212
Recommendations Closed / Acceptable Status	146 ¹
Recommendations Closed / Unacceptable Status	56

Aviation Certificate Appeals

Total Cases Received	348
Total Cases Closed	329
Emergency Cases Closed	135

¹ Two intermodal safety recommendations were closed in acceptable status.

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Safety Recommendations and Quality Assurance Division

Table 1. 2011 Safety Recommendations and Quality Assurance Statistics Division.

Safety Recommendations and Quality Assurance 2011 At A Glance	
Recommendations Issued	212
Recommendations Closed in Acceptable Status	146
Recommendations Closed in Unacceptable Status	56

The Office of the Managing Director's mission is to provide the strategic direction of the organization and to guide and support NTSB programs to ensure the independence, competency, efficiency, and effectiveness of safety recommendations.

The Safety Recommendations and Quality Assurance Division, under the Office of the Managing Director, is responsible for designing and coordinating strategies to encourage those in a position to effect changes to implement the NTSB's recommendations. The division is also responsible for tracking the implementation of those safety recommendations after they are issued to recipients and maintaining statistics of recommendation adoption and implementation rates. A summary of the 2011 safety recommendations is shown in Table 1. The division is also responsible for managing the NTSB's notation and correspondence processes and coordinating agency products that go to the Board. The division ensures that the highest quality of the NTSB's products is consistently maintained.

In 2011, the division submitted 155 separate notation items to the Board members for their consideration. The Board adopted 136 of these items in 2011. Eighteen of the items submitted for consideration are still in progress.

Safety recommendations are issued by the NTSB following the investigation of transportation accidents and other safety problems. Recommendations usually address a specific issue uncovered during an investigation or study and specify corrective action that will prevent recurrences. Letters containing the recommendations are sent to the organization best able to act on the problem; recipients of NTSB safety recommendations include the U.S. DOT and its modal administrations², the USCG, other Federal and state agencies, manufacturers, industry and trade organizations, and others.

The division encourages the Federal U.S. DOT modal administrations, the USCG, other Federal agencies, and other recipients to implement the NTSB's recommendations and in 2011, the NTSB issued 212 recommendations, including 95 aviation, 48 highway, 27 marine, 10 railroad, and 32 pipeline recommendations. Over the last 5 years, the NTSB has issued 1,021 safety recommendations across all modes of transportation, as shown in Figure 1. During 2011, a total of 202 recommendations were closed,

² Department of Transportation modal agencies include the following: the Federal Aviation Administration (FAA), the Federal Highway Administration (FHWA), the Federal Motor Carrier Safety Administration (FMCSA), the Federal Railroad Administration (FRA), the Federal Transit Administration (FTA), the National Highway Traffic Safety Administration (NHTSA), and the Pipeline and Hazardous Material Safety Administration (PHMSA).



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146 with an acceptable status; all of the acceptable closures represented a positive impact on transportation safety. Of the safety recommendations issued between the beginning of 2007 and the close of 2011, excluding recommendations that are in-work, reconsidered, superseded, or no longer applicable, 78 percent of the recommended actions have been satisfactorily completed.

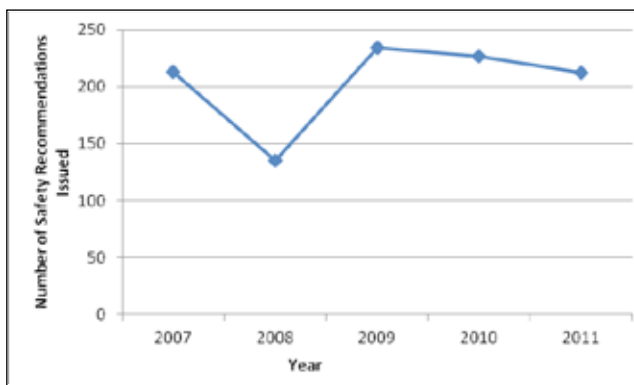


Figure 1. Number of Safety Recommendations Issued by Year.

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- In response to NTSB safety recommendations, the Federal agencies issued a number of very important notices of proposed rulemakings (NPRMs), advanced notices of proposed rulemakings (ANPRMs), or supplemental notices of proposed rulemakings (SN-PRMs) (Table 2).
- Advocacy efforts by NTSB staff and the FAA’s staff to resolve issues regarding recommendations issued to the FAA led to the closure of 133 recommendations issued to that agency.
- On January 21, 2011, the FAA published a final rule requiring Part 135 carriers to have similar CRM training requirements for their flight crews as is required for Part 121. This closed the previously issued safety recommendations, A-03-52 and A-95-124, which both were listed on NTSB’s *Most Wanted List*.

Table 2. Notices of Proposed Rulemaking from Federal Agencies that Addressed Safety Recommendations.

Notices of Proposed Rule Making Addressing Safety Recommendations	
National Oceanographic and Atmospheric Administration	1
Federal Aviation Administration	12
Pipeline and Hazardous Materials Safety Administration	3
US Coast Guard	1
Federal Motor Carrier Safety Administration	3



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Table 3. 2011 Aviation Safety Statistics.

Office of Aviation Safety 2011 At A Glance	
Major Accident Launches	4
Regional Investigation Accident Launches	302
International Accident Launches	7
Major Reports	5
Accident Briefs	1466
Recommendations Issued	95
Recommendations Closed in Acceptable Status	96
Recommendations Closed in Unacceptable Status	52

The Office of Aviation Safety has the responsibility for investigating aviation accidents and incidents (about 1,800 annually) and for proposing the probable cause of accidents for the Board's approval. In collaboration with other offices within the NTSB, the Office of Aviation Safety also works to formulate recommendations to prevent the recurrence of similar accidents and incidents and to otherwise improve aviation

safety. NTSB investigations routinely examine all factors surrounding an accident or series of accidents or serious incidents, thereby ensuring that regulatory agencies and the industry are given a thorough and objective analysis of actual, as well as potential, deficiencies in the transportation system. Solutions can then be proposed to correct deficiencies that may have caused an accident. Given the international nature of air transportation and the leading role of the U.S. in the development of aviation technologies, the NTSB's investigations of domestic accidents and its participation in foreign investigations are essential to the enhancement of aviation safety worldwide. The agency's major aviation accident reports, safety recommendations, and accident statistics are disseminated worldwide and have a direct influence on safety policies domestically and abroad, helping to ensure the safe transportation by air of U.S. citizens and other travelers around the world.

The NTSB fulfills U.S. obligations to foreign accident investigations, established by treaty under the auspices of the International Civil Aviation Organization (ICAO), by sending accredited representatives and technical advisors from airframe and engine manufacturers to participate in investigations that involve U.S. interests. The office also maintains liaison and coordination with other government agencies through the U.S. Interagency Group on International Aviation and ICAO. The headquarters for the Office of Aviation Safety is in Washington, D.C.. Four regions operate out of nine office sites around the country.

The headquarters office comprises five divisions that reflect the organization of the NTSB's investigative process: Major Investigations, Operational Factors, Aviation Engineering, Human Performance and Survival Factors, and Writing and Editing.



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Loss of Control While Maneuvering, Pilatus PC-12/45, N128CM, Butte, Montana, (14 fatalities, 0 injured)

On March 22, 2009, about 1432 mountain daylight time, a Pilatus PC-12/45, N128CM, was diverting to Bert Mooney Airport (BTM), Butte, Montana, when it crashed about 2,100 feet west of runway 33 at BTM. The pilot and the 13 airplane passengers were fatally injured, and the airplane was substantially damaged by impact forces and a postcrash fire. The airplane was owned by Eagle Cap Leasing of Enterprise, Oregon, and was



Figure 2. Wreckage of Pilatus PC-12/45 in Butte, Montana.

operating as a personal flight under the provisions of 14 *Code of Federal Regulations* Part 91. The flight departed Oroville Municipal Airport, Oroville, California, on an instrument flight rules flight plan with a destination of Gallatin Field, Bozeman, Montana. Visual meteorological conditions prevailed at the time of the accident.

The NTSB determined that the probable cause of this accident was (1) the pilot's failure to ensure that a fuel system icing inhibitor was added to the fuel before the flights on the day of the accident; (2) his failure to take appropriate remedial actions after a low fuel pressure state (resulting from icing within the fuel system) and a lateral fuel imbalance developed, including diverting to a suitable airport before the fuel imbalance became extreme; and (3) a loss of control while the pilot was maneuvering the left-wing-heavy airplane near the approach end of the runway.

The safety issues discussed in this report address fuel system limitations, requirements for fuel filler placards, and guidance on fuel system icing prevention.

Safety Recommendations Issued

As a result of its investigation, the NTSB issued five recommendations to the FAA and four recommendations to the European Aviation Safety Agency (EASA). The NTSB also included three previously issued recommendations and reclassified one recommendation to the FAA in this report.

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Crash After Encounter with Instrument Meteorological Conditions During Takeoff from Remote Landing Site New Mexico State Police, Agusta S.p.A. A-109E, N606SP, Santa Fe, NM (2 fatalities, 1 injured)



Figure 3. Wreckage of New Mexico State Police Helicopter.

On June 9, 2009, about 2135 mountain daylight time, an Agusta S.p.A. A-109E helicopter, N606SP, impacted terrain following visual flight rules flight into instrument meteorological conditions near Santa Fe, New Mexico. The commercial pilot and one passenger were fatally injured; a highway patrol officer who was acting as a spotter during the

accident flight was seriously injured. The entire aircraft was substantially damaged. The helicopter was registered to the New Mexico Department of Public Safety and operated by the New Mexico State Police (NMSP) on a public search and rescue mission under the provisions of 14 *Code of Federal Regulations* Part 91 without a flight plan. The helicopter departed its home base at Santa Fe Municipal Airport, Santa Fe, New Mexico, about 1850 in visual meteorological conditions; instrument meteorological conditions prevailed when the helicopter departed the remote landing site about 2132.

The NTSB determined that the probable cause of this accident was the pilot's decision to take off from a remote, mountainous landing site in dark (moonless) night, windy, instrument meteorological conditions. Contributing to the accident was an organizational culture that prioritized mission execution over aviation safety and the pilot's fatigue, self-induced pressure to conduct the flight, and situational stress. Also contributing to the accident were deficiencies in the NMSP aviation section's safety-related policies, including lack of a requirement for a risk assessment at any point during the mission; inadequate pilot staffing; lack of an effective fatigue management program for pilots; and inadequate procedures and equipment to ensure effective communication between airborne and ground personnel during search and rescue missions.

The safety issues discussed in this report include the pilot's decision-making, flight and duty times and rest periods, NMSP staffing, safety management system programs and risk assessments, communications between the NMSP pilots and volunteer search and rescue organization personnel, instrument flying, and flight-following equipment.

Safety Recommendations Issued

As a result of its investigation, the NTSB issued three recommendations to the Governor of the state of New Mexico and four each to the Airborne Law Enforcement Association,

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the National Association of State Aviation Officials and the International Association of Chiefs of Police.

Collision into Mountainous Terrain, GCI Communication Corp. de Havilland DHC-3T, N455A, Aleknagik, AK (5 fatalities, 4 injured)

On August 9, 2010, about 1442 Alaska daylight time, a single-engine, turbine-powered, amphibious float-equipped de Havilland DHC-3T airplane, N455A, impacted mountainous, tree-covered terrain about 10 nautical miles (nm) northeast of Aleknagik, Alaska. The airline transport pilot and four passengers received fatal injuries, and four passengers received serious injuries. The airplane sustained substantial



Figure 4. Wreckage of DHC-3T Airplane in Aleknagik, Alaska.

damage, including deformation and breaching of the fuselage. The flight was operated by GCI Communication Corp. (GCI), of Anchorage, Alaska, under the provisions of 14 *Code of Federal Regulations* Part 91. About the time of the accident, meteorological conditions that met the criteria for marginal visual flight rules were reported at Dillingham Airport, Dillingham, Alaska, about 18 nm south of the accident site. No flight plan was filed. The flight departed about 1427 from a GCI-owned private lodge on the shore of Lake Nerka and was en route to a remote sport fishing camp about 52 nm southeast on the Nushagak River.

The safety issues discussed in this report relate to the lack of a FAA requirement for a crash-resistant flight recorder system, improperly designed or maintained emergency locator transmitter mounting and retention mechanisms, inadequate FAA guidance related to the medical certification of pilots who have had a cerebrovascular event, and the lack of passenger briefings related to survival and communications equipment.

Safety Recommendations Issued

As a result of its investigation, the NTSB issued four new safety recommendations to the FAA, and to the Aircraft Owners and Pilots Association. The NTSB also reclassified and reiterated two recommendations each to the FAA.

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Crash During Approach to Landing, Empire Airlines Flight 8284 Avions de Transport Regional, erospatale Alenia ATR 42-320, N902FX, Lubbock, TX (0 fatalities, 2 injured)



Figure 5. Wreckage of Empire Airlines ATR-42 in Lubbock, Texas.

Aerospatale Alenia ATR 42-320, N902FX, operating as Empire Airlines flight 8284, was on an instrument approach when it crashed short of the runway at Lubbock Preston Smith International Airport, Lubbock, Texas. The captain sustained serious injuries, and the first officer sustained minor injuries. The airplane was substantially damaged. The airplane was registered to FedEx

Corporation and operated by Empire Airlines, Inc., as a 14 Code of Federal Regulations Part 121 supplemental cargo flight. The flight departed from Fort Worth Alliance Airport, Fort Worth, Texas, about 0313. Instrument meteorological conditions prevailed, and an instrument flight rules flight plan was filed.

The NTSB determined that the probable cause of this accident was the flight crew’s failure to monitor and maintain a minimum safe airspeed while executing an instrument approach in icing conditions, which resulted in an aerodynamic stall at low altitude. Contributing to the accident were 1) the flight crew’s failure to follow published standard operating procedures in response to a flap anomaly, 2) the captain’s decision to continue with the unstabilized approach, 3) the flight crew’s poor crew resource management, and 4) fatigue due to the time of day in which the accident occurred and a cumulative sleep debt, which likely impaired the captain’s performance.

Safety Recommendations Issued

As a result of its investigation, the NTSB issued nine safety recommendations to the FAA.

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Crash During Attempted Go-Around After Landing East Coast Jets Flight 81, Hawker Beechcraft Corporation 125-800A, N818MV, Owatonna, MN (8 fatalities, 0 injured)

On July 31, 2008, about 0945 central daylight time, East Coast Jets flight 81, a Hawker Beechcraft Corporation 125-800A airplane, N818MV, crashed while attempting to go around after landing on runway 30 at Owatonna Degner Regional Airport, Owatonna, Minnesota. The two pilots and six passengers were killed, and the airplane was destroyed by impact forces. The nonscheduled, domestic passenger flight was operating under the provisions of 14 *Code of Federal Regulations* Part 135. An instrument flight rules flight plan had been filed and activated; however, it was canceled before the landing. Visual meteorological conditions prevailed at the time of the accident.



Figure 6. Wreckage of East Coast Jet Hawker Beechcraft 125-800A after accident in Owatonna, Minnesota.

The NTSB determined that the probable cause of this accident was the captain's decision to attempt a go-around late in the landing roll with insufficient runway remaining. Contributing to the accident were (1) the pilots' poor crew coordination and lack of cockpit discipline; (2) fatigue, which likely impaired both pilots' performance; and (3) the failure of the FAA to require crew resource management (CRM) training and standard operating procedures (SOPs) for 14 CFR Part 135 operators.

The safety issues discussed in this report relate to the following: flight crew actions; lack of SOPs requirements for Part 135 operators, including CRM training and checklist usage; go-around guidance for turbine-powered aircraft; Part 135 preflight weather briefings; pilot fatigue and sleep disorders; inadequate arrival landing distance assessment guidance and requirements; Part 135 on-demand, pilot-in-command line checks; and cockpit image recording systems. Safety recommendations concerning these issues are addressed to the FAA.

Safety Recommendations Issued

As a result of its investigation, the NTSB issued 14 new safety recommendations and reclassified two recommendations to the FAA.

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American Airlines Flight 2253 runway overrun, Jackson Hole, WY, December 10, 2010

Southwest Airlines Flight 812-inflight fuselage rupture, Yuma, AZ, April 1, 2011

Gulfstream GVI flight test accident, Roswell, NM, April 2, 2011

Aviation accident at Reno Air Races, Reno, NV, September 16, 2011

Sundance Helicopter sightseeing accident, Las Vegas, NV, December 7, 2011

International Aviation Accident Investigations

The NTSB participates in the investigation of aviation accidents and serious incidents outside the United States in accordance with the Chicago Convention of ICAO and the Standards and Recommended Practices (SARPS) provided in Annex 13 to the Convention.

If an accident or serious incident occurs in a foreign state involving a civil aircraft of U.S. registry, a U.S. operator, or an aircraft of U.S. design or U.S. manufacture, and the foreign state is a signatory to the ICAO Convention, that state is responsible for the investigation. In accord with the ICAO Annex 13 SARPS, upon receipt of ICAO notification of the accident or serious incident, the NTSB designates a U.S. accredited representative and appoints advisors to carry out the obligations, receive the entitlements, provide consultation, and receive safety recommendations from the state of occurrence.

If an accident or serious incident occurs in a foreign state not bound by the provisions of Annex 13 to the ICAO Convention, if a foreign state delegates all or part of an investigation by mutual consent to the NTSB, or if the accident or serious incident involves a public aircraft, the conduct of the investigation shall be in consonance with any agreement entered into between the United States and the foreign state.

The following are ongoing major international investigations:

Crash of Swearingen SA-227 Metroliner, Cork, Ireland, February 10, 2011

The NTSB assisted the government of Ireland in its investigation of a flight which crashed after attempting a landing at Cork Airport, Cork, Ireland.

Crash of Sol Lineas Aereas Saab 340 in Los Menucos, Argentina, May 18, 2011

The NTSB assisted the Junta de Investigaciones de Accidentes de Aviación Civil of Argentina in its investigation of a Sol Lineas Aereas Saab 340 airplane that crashed in Los Menucos, Argentina.

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Crash of Hewa Board flight 952, a Boeing 727-100 in Kisangani, Democratic Republic of Congo, July 8, 2011

The NTSB assisted the government of the Democratic Republic of Congo in its investigation of the crash of Hewa Bora Airlines flight 952, a Boeing 727-100, on approach to Bangoka International Airport, Kisangani, Democratic Republic of Congo.

Crash of Asiana flight 991, near Jeju Island, South Korea, July 29, 2011

The NTSB assisted the government of South Korea in its investigation of the crash of Asiana flight 991, a Boeing 747-400F cargo airplane en route from Seoul Incheon International Airport to Shanghai Pudong International Airport, People's Republic of China, after the flight crew reportedly declared an emergency due to an in-flight fire.

Crash of Caribbean Airlines flight 523, Georgetown, Guyana, July 31, 2011

The NTSB assisted the government of Guyana in its investigation of accident at Cheddi Jagan International Airport, Georgetown, Guyana, involving a scheduled passenger flight which overran the runway during landing.

Crash of First Air flight 6560, a Boeing 737-200, near Nunavut, Canada, August 22, 2011

The NTSB assisted the government of Canada in its investigation of a crash of First Air flight 6560, a Boeing 737-200 combi airplane on approach, East of Resolute Bay, Nunavut, Canada.

Crash of Fuerza Aerea Mexicana Eurocopter AS 332L in Mexico City, Mexico, November 11, 2011

The NTSB assisted the Dirección General de Aeronáutica Civil of Mexico in its investigation of the Fuerza Aerea Mexicana presidential use Eurocopter AS 332L helicopter in Mexico City, Mexico.

Public Hearings, Forums, and Symposiums

Airplane Fuselage Structural Integrity Forum

This safety forum offered an increased understanding of the multiple layers of protection that exist to assure fuselage structural integrity throughout the operational lifespan of an airplane. It was intended to raise awareness by promoting an open discussion between the NTSB and invited panelists from industry and government on the design, manufacture, and inspection requirements for airplane fuselage structures to ensure that the already high safety record in this area continues.

Seven panels were presented during the 2-day forum. Panelists were questioned by a technical panel composed of NTSB Directors and staff of the Office of Aviation Safety and Research and Engineering, and the Vice Chairman, who made up the Board of Inquiry.



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Oversight of Public Aircraft Operations: Ensuring Safety for Critical Missions Forum

This safety forum addressed oversight of public aircraft. The goals of the forum were to (1) raise awareness of the importance of effective oversight in ensuring the safety of public aircraft operations; (2) identify where responsibility lies for oversight of public aircraft operations; and (3) facilitate the sharing of best practices and lessons learned across a number of parties involved in the oversight of public aircraft operations.

Public aircraft are operated by a Federal, state or local government for the purpose of fulfilling governmental functions, such as firefighting, search and rescue, law enforcement, wildlife or land management, or aeronautical research. Government organizations conducting public aircraft operations supervise their own flight operations without oversight from the FAA.

Seven panels were presented during the 2-day forum. Panelists were questioned by a technical panel composed of NTSB staff from the offices of Aviation Safety, General Counsel, and Managing Director, as well as the NTSB Board Members, who made up the Board of Inquiry.

NTSB's Role in International Investigations Forum

On October 12, 2011, the Board met to discuss the NTSB's role in representing the U.S. as a participant in international aviation accident and incident investigations. The Board adopted a staff proposal to host an international conference in 2012 focused on challenges and best practices in international investigative work. During the Board meeting, officials discussed U.S. obligations under Annex 13 to the Convention on International Civil Aviation, NTSB participation in international aviation investigations past and present, and the types of challenges that can arise in international investigative work. Also highlighted were specific examples of international investigations in which NTSB participation led to improvements in aviation safety here in the U.S. and abroad as well as NTSB-led domestic investigations that benefited from the participation of other international accident investigation agencies.

Significant Achievements

- The Office of Aviation Safety completed the Aleknagik, AK, accident investigation in less than 10 months and issued 6 important safety recommendations based on the findings.
- The Office of Aviation Safety held two Public Forums, one on Airplane Fuselage Structural Integrity Forum, which increased understanding of the multiple layers of protection that exist to assure fuselage structural integrity, and one entitled "Public Aircraft: Ensuring Safety for Critical Missions", which addressed oversight of public aircraft operations.
- The Office of Aviation Safety held a Board Meeting that focused on the Safety Board's role in international accident investigations, the first time this topic had been brought to the board in over a decade.

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The Office of Highway Safety conducts thorough, comprehensive, independent, and objective investigations of highway accidents to identify root causes and proposes recommendations for the Board's approval to prevent future accidents.

The NTSB is required to investigate highway accidents, including railroad grade crossing accidents that the Board selects in cooperation with a state. With 7 million highway accidents occurring per year in the United States (19,000 per day), the Office of Highway Safety must be highly selective in choosing for investigation those accidents that will identify nationwide highway safety issues.

In cooperation with other offices, the office works to formulate recommendations to prevent the recurrence of similar accidents to otherwise improve highway safety. Because of the unique nature and thoroughness of the NTSB's accident investigation process, the staff continues to discover emerging safety issues each year. In 2011, the office addressed and made safety recommendations concerning:

- Rollover stability control systems on cargo tank trailers
- Performance standards for cargo tank designs
- Stability control systems for all commercial vehicles and buses
- Roadway hazards that pose a rollover hazard or where bridges are vulnerable to collapse if struck by a heavy vehicle
- Warrants and implementation criteria for median barriers, and prohibitions on the nonemergency use of portable electronic devices by all drivers, among other issues

By raising these concerns, the Board has successfully changed the agenda of regulatory agencies and the transportation industry to focus their attention on them.

In addition, this office and the Office of Research and Engineering may conduct safety studies or special investigations regarding specific highway safety issues. These safety studies or investigations can result in recommendations to Federal and state agencies and to the highway industry. The Office of Highway Safety is organized into the Investigations Division and the Report Development Division. Office staff are located in five regional offices to facilitate rapid response to accidents.

Table 4. 2011 Highway Safety Statistics.

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Major Accident Launches	3
Field Investigation Accident Launches	9
Major Reports	3
Recommendations Issued	48
Recommendations Closed in Acceptable Status	28
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Rollover of a Truck-Tractor and Cargo Tank Semitrailer Carrying Liquefied Petroleum Gas and Subsequent Fire, Indianapolis, IN (0 fatalities, 5 injured)



Figure 7. Burned truck-tractor at final rest with overpass in background. (Source: Lawrence Township Fire Department.)

On October 22, 2009, about 10:38 a.m. eastern daylight time, a 2006 Navistar International truck-tractor in combination with a 1994 Mississippi Tank Company MC331 specification cargo tank semitrailer (the combination unit), operated by AmeriGas Propane, L.P., and laden with 9,001 gallons of liquefied petroleum gas, rolled over on a connection ramp after exiting Interstate

69 (I-69) southbound to proceed south on Interstate 465 (I-465), about 10 miles north-east of downtown Indianapolis, Indiana.

The truck driver's excessive, rapid, evasive steering maneuver triggered a sequence of events that caused the cargo tank semitrailer to roll over, decouple from the truck-tractor, penetrate a steel W-beam guardrail, and collide with a bridge footing and concrete pier column supporting the southbound I-465 overpass. The collision entirely displaced the outside bridge pier column from its footing and resulted in a breach at the front of the cargo tank that allowed the liquefied petroleum gas to escape, form a vapor cloud, and ignite.

The truck driver and four passenger vehicle occupants sustained injuries in the accident and postaccident fire.

The NTSB determined that the probable cause of this accident was the excessive, rapid, evasive steering maneuver that the truck driver executed after the combination unit began to encroach upon the occupied left lane. Contributing to the rollover was the driver's quickly steering the combination unit from the right shoulder to the right lane, the reduced cross slope of the paved right shoulder, and the susceptibility of the combination unit to rollover because of its high center of gravity. Mitigating the severity of the accident was the bridge design, including the elements of continuity and redundancy, which prevented the structure from collapsing.

The following safety issues were identified in this investigation:

- Essential elements of a comprehensive rollover prevention program
- Rollover propensity of cargo tank motor vehicles, which provides little tolerance for operator error
- Safety implications of reduced shoulder cross slope on the roll stability of heavy commercial vehicles with a high center of gravity

- Lack of quality data necessary for conducting meaningful risk analyses to evaluate the crash performance of U.S. DOT specification cargo tanks
- Absence of guidelines for identifying and protecting bridges vulnerable to collapse if struck by errant heavy commercial vehicles negotiating direct and semi-direct connection ramps

Safety Recommendations Issued

As a result of its investigation, the NTSB issued one recommendation to the U.S. DOT, two to FMCSA, three to PHMSA, six to NHTSA, five to FHWA, and three to the American Association of State Highway and Transportation Officials (AASHTO). The NTSB also reclassified one recommendation each to AASHTO and NHTSA.

Truck-Tractor Semitrailer Median Crossover Collision With 15-Passenger Van, Munfordville, KY (11 fatalities, 2 injured)



Figure 8. Wreckage of Munfordville, Kentucky truck-tractor collision.

On Friday, March 26, 2010, about 5:14 a.m. central daylight time, near Munfordville, Kentucky, a 1999 Freightliner truck-tractor in combination with a 1998 Strick Corporation 53-foot-long van semitrailer, owned by the motor carrier Hester, Inc., and being driven by a 45-year-old male, was traveling south on Interstate 65 (I-65) near milepost 61.5. The truck departed the left lane of southbound I-65

at a shallow angle and entered the 60-foot-wide depressed earthen median between the southbound and northbound roadways. The truck traveled across the median and struck and overrode the high-tension, four-cable, alternating-post median barrier adjacent to the left shoulder of northbound I-65. It then crossed the left shoulder and entered the travel lanes of northbound I-65.

As a result of the accident and subsequent truck fire, the truck driver, the van driver, and nine van passengers died. Two child passengers in the van, who were using child restraints, sustained minor injuries.

The NTSB determined that the probable cause of this accident was the truck driver's failure to maintain control of the truck-tractor combination vehicle because he was distracted by use of his cellular telephone. Contributing to the severity of the accident were a median barrier that was not designed to safely contain or redirect the heavy vehicle and the lack of adequate guidance to the states in the form of high-performance median barrier warrants.

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The following safety issues are discussed in this report:

- The need to prohibit the use of cellular telephones by drivers of commercial motor vehicles
- The need to provide objective warrants, rather than general guidelines, for the application of median barriers
- The need to revise state seat belt laws to include occupants of 15-passenger vans
- The need to detect unsafe motor carriers attempting to obtain operating authority by submitting inaccurate or deceptive information to the FMCSA
- The need to evaluate the performance of the FMCSA new entrant program

Safety Recommendations Issued

As a result of its investigation, the NTSB issued five recommendations to FHWA, two to FMCSA; one each to NHTSA, the 50 states and the District of Columbia, and the Commonwealth of Kentucky; three to AASHTO, and two to the Governors Highway Safety Administration. The NTSB also reiterated two previous recommendations to the FMCSA and reclassified one recommendation each to the FMCSA, the 50 states and the District of Columbia, and AASHTO.

Multivehicle Collision Interstate 44 East Bound, Gray Summit, MO (2 fatalities, 38 injured)



Figure 9: Wreckage of multivehicle collision in Gray Summit, Missouri. (Courtesy of Boles Fire Protection District)

On August 5, 2010, in Gray Summit, Missouri, traffic slowed in the approach to an active work zone on eastbound Interstate 44. A 2007 Volvo truck-tractor with no trailer was traveling in the right lane and had slowed or stopped behind traffic. About 10:11 a.m. central daylight time, a 2007 GMC Sierra extended cab pickup truck merged into the right lane and struck the rear of the Volvo tractor. This

collision was the first in a series of three. Two school buses from St. James High School, St. James, Missouri, were approaching the slowed traffic and the collision ahead. The lead bus was a 71-passenger bus, occupied by 23 passengers. Following closely behind the lead bus was a 72-passenger bus, occupied by 31 passengers. Seconds after the lead bus passed a motorcoach that had stopped on the shoulder, it struck the rear of the GMC pickup truck. This collision—the second in the series—caused the pickup truck to overturn onto the back of the Volvo tractor. The front of the first bus came to rest on top of the GMC pickup truck and the Volvo tractor. Moments later, the second bus struck the lead bus. As a result of this accident sequence, the driver of the GMC pickup truck and one passenger seated

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in the rear of the first bus were fatally injured. A total of 35 bus passengers, the 2 bus drivers, and the driver of the Volvo tractor were injured. Eighteen people were uninjured.

Major safety issues identified in this investigation were:

- Potential use of video event recorder data in monitoring and oversight of driver performance
- Driver distraction due to use of a portable electronic device
- Necessity of maintaining adequate focus on the forward roadway and keeping recommended minimum following distance
- Medical oversight of interstate commercial drivers
- Inadequate Missouri state school bus inspection regulations and procedures;
- Absence of Missouri state oversight of motor carriers involved in pupil transportation
- Frequency of rear-end accidents; design of emergency exit windows on school buses
- Absence of a Missouri state requirement for pretrip safety briefings for pupils traveling to an activity or on a field trip in a school bus or a school-chartered bus

Safety Recommendations Issued

As a result of its investigation, the NTSB issued three recommendations NHTSA, six to the state of Missouri, one each to the 50 states and the District of Columbia, the Missouri Department of Elementary and Secondary Education, CTIA–The Wireless Association, the Consumer Electronics Association, the National Association of State Directors of Pupil Transportation Services, the National Association for Pupil Transportation, and the National School Transportation Association. In addition, the NTSB reiterated two recommendations to FMCSA, two to NHTSA and one to American Association of Motor Vehicle Administrators (AAMVA), as well as reiterated and reclassified to two recommendations to FMCA and one to NHTSA.

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- Motorcoach run off road, overturned, and struck a signpost, New York City, NY, March 12, 2011
- Motorcoach run off road and overturn, Doswell, VA, May 31, 2011
- Tractor-Double-Trailer struck side of Amtrak train, Miriam, NV, June 24, 2011



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Public Forum on Truck and Bus Safety: A Decade of Progress



Figure 10. Truck and Bus Safety Forum Logo.

Highlighting its continued interest in large truck and bus safety, the NTSB convened a public forum May 10-11, 2011, in Washington, D.C. The forum reviewed the progress since a series of public hearings on the same topic in 1999-2000 and discussed the actions that would further improve truck and bus safety.

Board Member Robert L. Sumwalt chaired the forum. Day 1 included sessions on (1) carrier oversight and the determination of carrier safety fitness by Federal, state, and

industry organizations; (2) carrier operations, to include such topics as electronic onboard recorders, hours of service, safety culture, and vehicle size and weight; and (3) training and licensing of commercial drivers, to include commercial learner's permits, employer notification systems, graduated licensing, and data collection.

Day 2 focused on (1) driver safety, covering driver crash risk factors and approaches for increasing driver safety; (2) the state of driver health and wellness programs and progress toward comprehensive medical oversight for interstate commercial drivers; (3) the state of enhanced vehicle technologies, to include crash avoidance technologies such as electronic stability control and collision avoidance systems; and (4) advances in crash mitigation, such as passenger restraints, vehicle crashworthiness, vehicle compatibility, and highway barrier systems.

Significant Achievements

- During 2011, the Office of Highway Safety published 3 major accident reports that included 48 separate safety recommendations. These recommendations will help:
 - Prevent rollovers of cargo tank trailers, especially those carrying hazardous materials
 - Provide for rollover stability control systems cargo tank trailers
 - Establish performance standards for cargo tank designs
 - Prevent rollovers by equipping all commercial vehicles and buses with stability control systems
 - Identify and correct roadway hazards that pose a rollover hazard or where bridges are vulnerable to collapse if struck by a heavy vehicle
 - Prevent cross-median crashes by establishing warrants and implementation criteria for median barriers

- Prohibit both handheld and hands-free use of cell phones by commercial drivers
- Protect 15-passenger van passengers by requiring seat belt use
- Prohibit the nonemergency use of portable electronic devices by all drivers while at the same time providing education
- In response to NTSB recommendations, advocacy efforts and outreach by the Office of Highway Safety, the FHWA, FMCSA, and NHTSA have issued a number of very important NPRM's:
- FMCSA – Proposed restricting the use of hand-held cell phones by drivers of commercial motor vehicles. However, the Board remains concerned that the NPRM does not prohibit the use of hand-free devices.
- FMCSA—Proposed changes to the hours of service regulations for property-carrying commercial drivers. The Board has a long history of making recommendations to reduce the likelihood of fatigue-related highway accidents including recommendations concerning Hours of Service (HOS), electronic on-board recorders (EOBR), obstructive sleep apnea (OSA), fatigue education and training, vehicle- and environment-based countermeasures, and fatigue risk management programs.
- FMCSA -- Proposed rulemaking to amend the *Federal Motor Carrier Safety Regulations* to require certain motor carriers operating commercial motor vehicles (CMV) in interstate commerce to use electronic on-board recorders (EOBR) to document their hours of service (HOS). The NTSB has a long history of investigating fatigue-related accidents and advocating the use of in-vehicle recording systems to improve highway safety and provide a level playing field for all drivers.



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Table 5. 2011 Marine Safety Statistics.

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Major Accident Launches	1
Field Investigation Accident Launches	1
International Accident Launches	1
Major Reports	3
Accident Briefs	3
Recommendations Issued	27
Recommendations Closed in Acceptable Status	10
Recommendations Closed in Unacceptable Status	3

Title 49 *United States Code* Section 1131(a)(1)(E) states that “The NTSB shall investigate or have investigated (in detail the Board prescribes) and establish the facts, circumstances, and cause or probable cause of ... a major marine casualty (except a casualty involving only public vessels) occurring on or under the navigable waters, internal waters, or the territorial sea of the United States ... or involving a vessel of the United States under regulations prescribed jointly by

the Board and the head of the department in which the Coast Guard is operating.” A major marine casualty involves the loss of six or more lives; the loss of a self-propelled vessel of over 100 gross registered tons; property damage over \$500,000; or a serious threat to life, property, or the environment from hazardous materials. The Office of Marine Safety also investigates certain accidents that involve public and nonpublic vessels, involve significant issues related to USCG marine safety functions, are catastrophic, or indicate recurring safety issues in areas where the states have primary jurisdiction, such as accidents involving recreational boats or commercial vessels that operate solely in state waters.

In a memorandum of understanding (MOU) signed December 18, 2008, the NTSB and the USCG agreed that when both agencies investigate a marine casualty, one agency will serve as the lead Federal agency for the investigation. The NTSB Chairman and the USCG Commandant, or their designees, will determine which agency will lead the investigation. The NTSB may lead the investigation of “significant marine casualties” defined in the 2008 MOU as loss of 3 or more lives on a commercial passenger vessel; loss of life or serious injury to 12 or more persons on any commercial vessel; loss of a mechanically propelled commercial vessel of 1,600 or more gross tons; loss of life involving a highway, bridge, railroad, or other shoreside structure; serious threat, as determined by the NTSB Chairman and the USCG Commandant, or their designees, to life, property, or the environment by hazardous materials; and significant safety issues, as determined by the NTSB Chairman and the USCG Commandant, or their designees, relating to USCG marine safety functions.

A staff of professional investigators includes USCG–licensed master mariners as well as marine engineers, marine inspectors, naval architects, and human factors and survival factors specialists. The Office of Marine Safety and the Office of Research and Engineering may also conduct safety studies of specific marine safety issues. These safety studies generally result in recommendations to Federal and state agencies and to maritime industry organizations.

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Given the international nature of the marine transportation system and the number of foreign-registered cruise and cargo ships operating from U.S. ports, the NTSB's investigation of accidents involving both domestic and foreign-registered vessels promotes marine safety worldwide. The NTSB investigates marine accidents involving foreign-registered vessels operating in U.S. waters and has investigated marine accidents involving U.S.-registered ships as far away as the Persian Gulf and the South China Sea. In 2011, the NTSB investigated one international accident. The NTSB also cooperates with foreign marine accident investigation authorities under standards established by the International Maritime Organization (IMO), and U.S. delegations participate in several IMO committees and subcommittees. As international standards are developed, NTSB staff informs the IMO of important safety-related issues that arise from NTSB investigations and provides expertise to the U.S. delegations. Participation in IMO committees and subcommittees enhances the NTSB's marine safety investigation capabilities by (1) contributing to the development of safety standards based on lessons learned from accident investigations; (2) keeping staff abreast of international marine developments; and (3) building good working relationships with technical experts from the USCG, the U.S. maritime industry and associations, and foreign governments involved in marine safety and marine accident investigations.

Completed Marine Investigations

Sinking of U.S. Fishing Vessel Lady Mary, Atlantic Ocean (6 fatalities, 1 injured)

Between 0510 and 0540 on the morning of March 24, 2009, the fishing vessel *Lady Mary* sank in 210 feet of water in the Atlantic Ocean 65 miles off the New Jersey coast. Six crewmembers died in the accident, including the two owners, one of whom was the master. One crewmember survived.

The NTSB determined that the probable cause of the sinking of the *Lady Mary* was flooding originating in the lazarette through an access hatch that had been left open during rough weather, contrary to safe shipboard practice. Contributing to the delay in the dispatch of rescue assets was the inability of the *Lady Mary*'s emergency position indicating radio beacon (EPIRB) to transmit position data following activation.



Figure 11. Sunken wreckage of *Lady Mary*, May 2009.

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Safety Recommendations Issued

As a result of its investigation, the NTSB issued one recommendation to the Federal Communications Commission. Other safety issues were addressed in recommendations concerning safety of the commercial fishing industry.

Collision of Tugboat/Barge Caribbean Sea/The Resource with Amphibious Passenger Vehicle DUKW 34, Delaware River, Philadelphia, PA (2 fatalities, 26 injured)



Figure 12. Tugboat Caribbean Sea and barge The Resource seconds after the bow of the barge made contact with DUKW 34, a portion of which is visible at far left. (Photo by Brian E. Stover)

On Wednesday, July 7, 2010, the empty 250-foot-long sludge barge *The Resource*, being towed alongside the 78.9-foot-long tugboat *Caribbean Sea*, collided with the anchored 33-foot-long amphibious passenger vehicle *DUKW 34* in the Delaware River at Philadelphia, Pennsylvania. *DUKW 34* carried 35 passengers and 2 crewmembers. On board the *Caribbean Sea* were five crewmembers. As a result of the collision, *DUKW 34* sank in about 55 feet of water.

Two passengers were fatally injured, and 26 passengers suffered minor injuries. No one on the *Caribbean Sea* was injured. Damage to *DUKW 34* totaled \$130,470. Damage to the barge was minimal; no repairs were made.



Figure 13. View of DUKW 34's damaged canopy, looking aft.

The NTSB determined that the probable cause of this accident was the failure of the mate of the *Caribbean Sea* to maintain a proper lookout due to (1) his decision to operate the vessel from the lower wheelhouse, which was contrary to expectations and to prudent seamanship, and (2) distraction and inattentiveness as a result of his repeated personal use of his cell phone and company

laptop computer while he was solely responsible for navigating the vessel. Contributing to the accident was the failure of Ride The Ducks International maintenance personnel to ensure that *DUKW 34*'s surge tank pressure cap was securely in place before allowing the

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vehicle to return to passenger service on the morning of the accident and the failure of the *DUKW 34* master to take actions appropriate to the risk of anchoring his vessel in an active navigation channel.

The major safety issues identified in the accident investigation are as follows:

- Vehicle maintenance
- Maintaining an effective lookout
- Use of cell phones by crewmembers on duty
- Response to the emergency by Ride The Ducks International personnel

Safety Recommendations Issued

As a result of its investigation, the NTSB issued four recommendations to the USCG and one each to the Ride the Ducks International, LLC; K-Sea Transportation Partners L.P.; and the American Waterways Operators.

Collision Between USCG Boat CG 25689 and Passenger Vessel Thriller 09, Charleston Harbor, SC (0 fatalities, 9 injured)

On Saturday, December 5, 2009, at 2028 local time, the 25-foot-long U.S. Coast Guard response boat–small (RB-S) *CG 25689* collided with the 55-foot-long small passenger vessel *Thriller 09* in Charleston Harbor, South Carolina. Before the accident, the *CG 25689*, accompanied by the RB-S *CG 25788*, had been providing a security escort to the U.S. cargo ship *Green Ridge*, which was outbound to sea. At the time of the accident, the *CG 25689* had completed the escort and was traveling back up the main shipping channel to return to the Military Outload (MOL) detachment operations facility on Goose Creek. The *Thriller 09* was on a 1-hour nighttime sightseeing cruise in Charleston Harbor.



Figure 14. Damage to the *CG 25689*'s bow collar foam, bow cover, and beaching plate.

The NTSB determined that the probable cause of the collision was the inadequate lookout by the crewmembers of both vessels, given the speed at which they were being operated and the nighttime conditions.

Safety Recommendations Issued

Safety issues identified were addressed in recommendations issued prior to completion of the investigation and the final report did not include additional recommendations.

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Collision Between U.S. Coast Guard Vessel CG 33118 and Sea Ray Recreational Vessel CF 2607 PZ, San Diego Bay, CA (1 fatality, 4 injured)



Figure 15. Fractured fiberglass on the Sea Ray.

On Sunday, December 20, 2009, about 1744 Pacific standard time, the 33-foot-long Coast Guard vessel *CG 33118*, designated by the Coast Guard as a special purpose craft—law enforcement, or SPC-LE, with five crewmembers on board, collided with a 24-foot-long Sea Ray recreational vessel with state registration number CF 2607 PZ, carrying 13 people, on San Diego Bay, California.

The collision occurred during the city’s annual holiday boat parade, the Parade of Lights. The Sea Ray was headed west near main shipping channel 2 to enable the occupants to watch the boat parade. The *CG 33118*, on patrol in the bay, was also headed west, its crew responding to a reported grounding. The *CG 33118* struck and overran the Sea Ray’s stern near the west end of Harbor Island. As a result of the collision, an 8-year-old boy on board the Sea Ray was fatally injured and four other people on board sustained serious injuries. No *CG 33118* crewmembers were injured in the accident.

The NTSB determined that the probable cause of the collision between the *CG 33118* and the Sea Ray was the failure of the *CG 33118* crew to see and avoid the Sea Ray because of the excessive speed at which the coxswain operated the *CG 33118*, given the prevailing darkness, background lighting, and high vessel density, and the USCG’s lack of effective oversight of its small boat operations both nationally and at Coast Guard Station San Diego.

Safety issues in this accident include the speed of the *CG 33118*, Coast Guard oversight of small boat operations, Coast Guard monitoring of small boat operational data, SPC-LE forward visibility, and Coast Guard use of personal cell phones while under way.

Safety Recommendations Issued

As a result of its investigation, the NTSB issued four recommendations to the USCG.

Sinking of commercial fishing vessel Katmai, Bering Sea (7 fatalities, 0 injured)

About midnight on October 21–22, 2008, during a severe storm, the U.S. commercial fishing vessel *Katmai* sank in the Bering Sea. The vessel was carrying about 120,000 pounds (53.57 long tons³) of frozen cod—twice the maximum weight addressed in the *Katmai*'s 1996 stability report. Of the 11 crewmembers on board, 4 were rescued, the bodies of 5 were recovered, and 2 remain missing and are presumed dead. NTSB investigators participated in a formal



Figure 16. Fishing vessel *Katmai* motoring through Ballard locks in Seattle (undated Seattle Times photo). White cylindrical structure (net reel) at stern was later removed when vessel was refitted for cod fishing. *Katmai* was the only vessel owned and operated by Katmai Fisheries, Inc.

USCG Marine Board of Investigation into the sinking, conducted on October 27–28, 2008, in Anchorage, Alaska, and on November 3 and December 10, 2008, in Seattle, Washington. Before the marine board convened, NTSB and USCG investigators examined one of the vessel's two liferafts, which had been taken to Anchorage after it was recovered.

The NTSB determined that the probable cause of the sinking of the *Katmai* was the loss of the vessel's watertight integrity because watertight doors from the main deck to the processing space and the lazarette were left open by the crew at a time when the vessel was overloaded and navigating in severe weather, which allowed water to enter the vessel resulting in progressive flooding and sinking. Contributing to the accident was the master's decision to continue fishing operations during the approach of severe weather rather than seeking shelter and to load twice the amount of cargo addressed in the vessel's stability report. Also contributing to the accident was the owner's failure to ensure that the stability information provided to the master was current and that the master understood it and operated the vessel accordingly.

Safety Recommendations Issued:

Safety issues identified in this investigation were addressed in recommendations concerning safety of the commercial fishing industry.

³ One long ton = 2,240 pounds.

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Collision of Tankship Eagle Otome with Cargo Vessel Gull Arrow and Subsequent Collision with the Dixie Vengeance Tow Sabine-Neches Canal, Port Arthur, TX (0 fatalities, 0 injured)



Figure 17. The three vessels after the accident. Overflight photo by the Coast Guard, looking west southwest.

On Saturday, January 23, 2010, about 0935 central standard time, the 810-foot-long oil tankship *Eagle Otome* collided with the 597-foot-long general cargo vessel *Gull Arrow* at the Port of Port Arthur, Texas. A 297-foot-long barge, the *Kirby 30406*, which was being pushed by the towboat *Dixie Vengeance*, subsequently collided with the *Eagle Otome*. The tankship was inbound in the Sabine-Neches Canal with a

load of crude oil en route to an ExxonMobil facility in Beaumont, Texas. Two pilots were on board, as called for by local waterway protocol. When the *Eagle Otome* approached the Port of Port Arthur, it experienced several unintended heading diversions culminating in the *Eagle Otome* striking the *Gull Arrow*, which was berthed at the port unloading cargo.

The NTSB determined that the probable cause of the collision of tankship *Eagle Otome* with cargo vessel *Gull Arrow* and the subsequent collision with the *Dixie Vengeance* tow was the failure of the first pilot, who had navigational control of the *Eagle Otome*, to correct the sheering motions that began as a result of the late initiation of a turn at a mild bend in the waterway. Contributing to the accident was the first pilot's fatigue, caused by his untreated obstructive sleep apnea and his work schedule, which did not permit adequate sleep; his distraction from conducting a radio call, which the second pilot should have conducted in accordance with guidelines; and the lack of effective bridge resource management by both pilots. Also contributing was the lack of oversight by the Jefferson and Orange County Board of Pilot Commissioners.

Safety Recommendations Issued

As a result of its investigation, the NTSB issued four recommendations to the USCG, one each to the Jefferson and Orange County Board of Pilot Commissioners, the Sabine Pilots Association, the American Pilots' Association; and three each to the governor of a state or territory in which state and local pilots operate. One recommendation to the USCG was reiterated and two previous recommendations were superseded.

Ongoing Major Marine Investigations

Allision of Staten Island Ferry *Andrew J. Barberi* with St. George Ferry Terminal, Staten Island, NY, April 8, 2010

Collision of the tank barge *MM3024*, which was being pushed by the uninspected towing vessel *Alliance*, with the tankship *Naticina* at the intersection of the Texas City Channel and Gulf Intracoastal Waterway (GIWW), near Galveston, TX, on August 17, 2011

Capsizing of the liftboat *Trinity II* in the Gulf of Mexico, near Ciudad del Carmen, Mexico, September 8, 2011

Collision of the M/V *Elka Apollon* and the M/V *MSC Nederland* in the Houston Ship Channel Houston, TX, October 29, 2011

Significant Achievements

- Through the issuance of three marine accident reports addressing distracted operation, the NTSB raised the level of awareness within the marine industry of the hazards of vessel operation while distracted by the use of personal wireless electronic devices by issuing four new recommendations to the USCG and one to the American Waterway Operations.
- The NTSB increased focus on the importance of safety management systems in marine operations by issuing two new recommendations to operating companies concerning their implementation of safety management systems.
- The NTSB raised awareness of fatigue in the marine industry by highlighting the issues of fatigue and its affects within the industry by highlighting the issue of fatigue and its affects within the industry.



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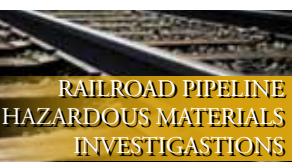
Table 6. 2011 Railroad, Pipeline, Hazmat Investigations Safety Statistics.

Office of Railroad, Pipeline and Hazardous Materials Investigations 2011 At A Glance	
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Railroad	7
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Railroad	10
Pipeline	32
Recommendations Closed Acceptable	
Railroad	10
Pipeline	7
Recommendations Closed Unacceptable	
Railroad	1

The Office of Railroad, Pipeline, and Hazardous Materials Investigations investigates many railroad accidents, including freight train collisions and derailments, placing special emphasis on train accidents that involve the traveling public, such as passenger train and rapid rail transit accidents. The NTSB's criteria for investigating a railroad accident include fatalities or substantial damage. On the basis of the investigations conducted by this office, the NTSB issues safety recommendations to Federal and state regulatory agencies, industry and safety standards organizations, carriers and pipeline operators, equipment and container manufacturers, producers and shippers of hazardous materials, and emergency response organizations.

The office is also required to investigate all pipeline accidents involving a fatality or substantial property damage and may investigate accidents of a recurring nature. Once notified of an accident, the NTSB dispatches to the site an investigator who takes charge of a team composed of investigative personnel from agencies such as the state public utility commission, local fire and police units, pipeline companies, and the U.S. DOT.

In addition, the office investigates selected accidents involving the release of hazardous materials in all modes of transportation, including fatal accidents or those causing major disruptions to a community. NTSB investigations focus especially on the effects of materials released in public areas, the emergency response by local authorities, and the adequacy of Federal standards for the transportation of hazardous materials. When the accident is the result of the transport of a hazardous material, the investigation focuses on the performance of the containers, the preparation for and handling of the material during transport, the health and safety hazards of the material, the markings and hazard communications for the shipments, and the effectiveness of the emergency response. The office also supports the investigation of accidents in other modes of transportation when the release of hazardous materials is involved.



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The Office of Railroad, Pipeline, and Hazardous Materials Investigations has four divisions: Railroad Division, Pipeline and Hazardous Materials Division, Human Performance and Survival Factors Division, and Report Development Division.

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Railroad Investigations

Employee Fatality while Switchin Cars in Railroad Yard, Selkirk, NY (1 fatality, 0 injured)

On Sunday, May 10, 2009, about 6:38 p.m., a CSX Transportation (CSX) remote control operator (RCO) was struck and killed by a train consisting of a remote controlled locomotive and seven cars (yard job number Y296-10). At the time of the accident, the RCO was working alone on track 23 in Selkirk Yard in Selkirk, New York. The RCO was controlling the train remotely at the east end of the yard and was planning to couple additional cars in preparation for movement onto another track. Before the RCO could add the additional cars, he had to replace a missing coupler knuckle⁴ on what was to be the eighth car of the train consist. He was in the process of coupling the seventh and eighth cars when the moving equipment struck him. At the time of the accident, it was daylight and sunny, and the temperature was 54° F.

The NTSB determined that the probable cause of the CSX Transportation remote control operator being struck and killed on May 10, 2009, in Selkirk Yard in Selkirk, New York, was the operator's loss of situational awareness when he stepped between moving equipment while attempting to couple the equipment, in violation of CSX Safety Rule TS-15.

Safety Recommendations Issued

None.

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⁴ A knuckle is the movable portion of a drawbar coupler, which is used to couple (connect) rail cars.

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Derailment of Chicago Transit Authority Passenger Cars on Elevated Track, Chicago, IL (0 fatalities, 14 injured)



Figure 18. Derailed lead cars of Chicago Transit Authority.

On May 28, 2008, about 10:05 a.m., southbound Chicago Transit Authority (CTA) Green Line train 003 traveling on elevated track between Harlem/Lake Avenue station and Cottage Grove derailed after crossing switch 85A, which was lined against the direction of the train at south main track marker 338 in Chicago, Illinois. Train 003 consisted of four passenger cars coupled in sets of two. There were 24 passengers onboard.

Fourteen passengers sustained minor injuries and were transported to area hospitals, where they were treated and released; the other 10 passengers declined medical attention. The total property damage to track, cars, and signal equipment was about \$338,000. At the time of the derailment, the winds were variable at 11 mph, visibility was 10 miles, and the temperature was 52° F.

The NTSB determined that the probable cause of the May 28, 2008, derailment of Chicago Transit Authority Green Line train 003 was the train operator's failure to observe, recognize, and act on the stop (red) signal indication at signal 86. Contributing to the accident was the operator's failure to comply with the operating instructions that specified the required actions to be taken after an emergency brake application. Also contributing to the accident was the lack of a positive train control system that would have stopped the train before the red signal when the operator did not respond properly, thereby preventing the derailment.

Safety Recommendations Issued

None.

Yard Foreman Struck by CSX Freight Car, Walbridge, OH (0 fatalities, 1 injured)

On April 1, 2008, about 3:22 a.m., a CSX Transportation (CSX) yard crew foreman was severely injured when he was struck by a free-rolling freight car in CSX's Stanley Yard in Walbridge, Ohio. He injured his left arm and shoulder, head, face, and lungs. At the time of the accident, it was dark and 53° F, with a light rain and winds up to 31 mph.



Figure 19. Train accident in Walbridge, Ohio.

The NTSB determined that the probable cause of the April 1, 2008, accident in which a free-rolling freight car in CSX's Stanley Yard struck a CSX foreman was the foreman's lack of situational awareness regarding movements on an adjacent track. Contributing to the accident was the foreman's failure to obtain protection from movements on the adjacent track in accordance with CSX's written policy. Also contributing to the accident was CSX's lack of managerial oversight of employees' adherence to the policy of obtaining adjacent track protection.

Safety Recommendations Issued

None.

Collision of Two Municipal Transportation Agency Light Rail Vehicles, West Portal Station, San Francisco, CA (0 fatalities, 48 injured)

On July 18, 2009, about 2:50 p.m., at West Portal Station, San Francisco, California, San Francisco Municipal Railway Transit System (MUNI) L Line train 1433 struck the rear end of standing MUNI K Line train 1407. The operators of both trains and 46 passengers were taken to hospitals. The operator of the striking train and 27 of the passengers had serious injuries. The incident was not affected by weather; it occurred as the trains were just exiting a tunnel. Estimated damages were \$4.5 million.



Figure 20. Wreckage of light rail vehicles in San Francisco, California.

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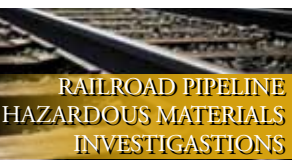
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The NTSB determined that the probable cause of this collision was the failure of the operator of L Line train 1407 to maintain the train in automatic mode until reaching the station stop at the West Portal platform, which would have been a safeguard against his loss of consciousness. Contributing to the accident was the San Francisco Municipal Railway Transit System’s failure to monitor and enforce the requirement that the operator wait until reaching the platform before changing the operating mode of the train.

Safety Recommendations Issued

None.

Collision of Metrolink Passenger Train and BNSF Freight Train, Rialto, CA (0 fatalities, 4 injured)



Figure 21. Metrolink passenger train wreckage near Rialto, California.

On Thursday, November 20, 2008, about 11:25 a.m., eastbound Metrolink passenger train 306 failed to stop at a red signal and had a raking side collision with the last eight cars and two rear locomotives of westbound Burlington Northern Santa Fe (BNSF) freight train LCAL 011120 that was entering a siding to meet the Metrolink train. The accident occurred at control

point Lilac near Rialto, California. There were 15 passengers and 3 crew members on the Metrolink train. Four passengers received minor injuries. The two crew members of the BNSF freight train were unhurt. Neither train derailed. The weather was clear with calm winds, and the temperature was 76° F.

The NTSB determined that the probable cause of this collision was the failure of the locomotive engineer and the assistant engineer on Metrolink train 306 to initiate the brake application sufficient to control the speed of the train that would allow the train to stop before passing the red signal. Contributing to the accident was the lack of a positive train control system.

Safety Recommendations Issued

None.

Collision of Two Massachusetts Bay Transportation Authority Light Rail Passenger Trains, Boston, MA (0 fatalities, 68 injured)

On Friday, May 8, 2009, about 7:14 p.m., westbound Massachusetts Bay Transportation Authority (MBTA) Green Line train 3612 struck the rear of standing westbound MBTA Green Line train 3808 near Government Center Station in Boston, Massachusetts. The accident occurred in the underground tunnel segment on the Green Line of the



Figure 22. Damage to front (cab) train near Boston, Massachusetts.

MBTA subway system. Each train consisted of two light-rail “married-pair” railcar sets. One car from each train derailed upright as a result of the collision. Sixty-eight injured passengers and crewmembers were transported to local hospitals. Monetary damages were estimated to be about \$9.6 million.

The NTSB determined that the probable cause of this collision was the failure of the pilot operator of the striking train to observe and appropriately respond to the red signal aspect at 744A because he was engaged in the prohibited use of a wireless device, specifically text messaging, that distracted him from his duties. Contributing to the accident was the lack of a positive train control system that would have intervened to stop the train and prevent the collision.

Safety Recommendations Issued

None.

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*Collision of Two Monorails in Walt Disney World Resort, Lake Buena Vista, FL
(1 fatality, 0 injured)*



Figure 23. The accident monorails after the collision. The rear operating cab of the Pink monorail (unoccupied at the time of the accident) is on the left, and the front operating cab of the Purple monorail is on the right.

About 2:00 a.m. on Sunday, July 5, 2009, two monorails collided on a fixed guideway system referred to as the Epcot beam near the Concourse station within Walt Disney World Resort in Lake Buena Vista, Florida. The accident occurred when the Pink monorail backed through an improperly aligned switch-beam⁵ and struck the Purple monorail. An operator and six passengers were on board the Purple monorail at the

time of the collision. The operator was fatally injured; the passengers were not injured. The only occupant of the Pink monorail, the operator, was taken to a nearby hospital and treated and released. At the time of the accident, weather conditions were clear with light winds and a temperature of 76° F. One operating cab from each of the monorails was destroyed.⁶ Total damages were estimated at \$24 million.

The NTSB determined that the probable cause of this collision was the shop panel operator's failure to properly position switch-beam and the failure of the monorail manager acting as the central coordinator to verify the position of switch-beam 9 before authorizing the reverse movement of the Pink monorail. Contributing to the accident was Walt Disney World Resort's lack of standard operating procedures leading to an unsafe practice when reversing trains on its monorail system.

Safety Recommendations Issued

None.

⁵ A switch-beam is a moveable section of the beam that is used to divert a monorail from one beam to another.

⁶ Each monorail had an operating cab at both ends to allow for movement in either direction.

Miami International Airport, Automated People Mover Train Collision with Passenger Terminal Wall, Miami, FL (0 fatalities, 7 injured)

About 4:44 p.m., eastern standard time, on November 28, 2008, a three-car train operating along a fixed guideway on E Concourse at Miami International Airport near Miami, Florida, failed to stop at the passenger platform and struck a wall at the end of the guideway. Although a maintenance technician was monitoring train operations from the lead car of the train when the accident occurred, the train was operating in fully automatic mode without a human operator. The maintenance technician and five passengers on board the train were injured in the accident. One person on the passenger platform also required medical attention.



Figure 24. APM trains of the type involved in this accident. In this view, looking west toward Satellite E, the south train is on the left.

The NTSB determined that the probable cause of this accident was the installation by Johnson Controls, Inc., maintenance technicians of a jumper wire that prevented the overspeed/overshoot system from activating to stop the train when the crystal within the primary program stop module failed. Contributing to the accident were (1) the failure of Johnson Controls, Inc., to provide its maintenance technicians with specific procedures regarding the potential disabling of vital train control systems during passenger operations, (2) ineffective safety oversight by the Miami-Dade Aviation Department, (3) lack of adequate safety oversight of such systems by the state of Florida, and (4) lack of authority by the U.S. Department of Transportation to provide adequate safety oversight of such systems.

Safety Recommendations Issued

As a result of this investigation, the NTSB issued one recommendation to the U.S. DOT, two to the 50 states and the District of Columbia, and one each to Miami-Dade County and Johnson Controls, Inc. The NTSB reiterated one recommendation to the U.S. DOT.

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Pipeline and Hazardous Materials Investigations

Pacific Gas and Electric Company Natural Gas Transmission Pipeline Rupture and Fire, San Bruno, CA (8 fatalities, many injured)



Figure 25. Ejected pipe section in San Bruno, California rupture and fire.

On September 9, 2010, about 6:11 p.m. Pacific daylight time, a 30-inch-diameter segment of an intrastate natural gas transmission pipeline known as Line 132, owned and operated by the Pacific Gas and Electric Company (PG&E), ruptured in a residential area in San Bruno, California. The rupture occurred at mile point 39.28 of Line 132, at the intersection of Earl Avenue and Glenview Drive. The rupture produced

a crater about 72 feet long by 26 feet wide. The section of pipe that ruptured, which was about 28 feet long and weighed about 3,000 pounds, was found 100 feet south of the crater. PG&E estimated that 47.6 million standard cubic feet of natural gas was released. The released natural gas ignited, resulting in a fire that destroyed 38 homes and damaged 70. Eight people were killed, many were injured, and many more were evacuated from the area.

The NTSB determined that the probable cause of the accident was PG&E’s (1) inadequate quality assurance and quality control in 1956 during its Line 132 relocation project, which allowed the installation of a substandard and poorly welded pipe section with a visible seam weld flaw that, over time grew to a critical size, causing the pipeline to rupture during a pressure increase stemming from poorly planned electrical work at the Milpitas Terminal; and (2) inadequate pipeline integrity management program, which failed to detect and repair or remove the defective pipe section. Contributing to the accident were the California Public Utilities Commission’s (CPUC) and the U.S. DOT’s exemptions of existing pipelines from the regulatory requirement for pressure testing, which likely would have detected the installation defects. Also contributing to the accident was the CPUC’s failure to detect the inadequacies of PG&E’s pipeline integrity management program.

Contributing to the severity of the accident were the lack of either automatic shutoff valves or remote control valves on the line and PG&E’s flawed emergency response procedures and delay in isolating the rupture to stop the flow of gas.

Safety Recommendations Issued

As a result of this investigation, the NTSB issued seven urgent recommendations before the completion of this report, three each to PG&E and CPUC and one to PHMSA.

On completion of the report, the NTSB issued four recommendations to the U.S. Secretary of Transportation, thirteen to PHMSA, one to the Governor of the State of California, two to CPUC, and eight to PG&E.

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Railroad

CSX Freight Train derailment of hazardous materials/fire near Shepherdsville, KY, January 16, 2007

Freight Train derailment and fire in Cherry Valley, IL, June 19, 2009

Dakota, Minnesota, & Eastern Freight Train collides with standing cars in Bettendorf, IA, July 14, 2009

Washington Metropolitan Area Transit Authority (WMATA) rear-end collision with standing train in Falls Church, VA, November 29, 2009

Switchman struck while performing remote control switching operations on a BNSF train near Minneapolis, MN, December 29, 2009

WMATA Hi-Rail Vehicle struck and fatally injured two wayside workers in Rockville, MD, January 26, 2010

WMATA Derailment near Farragut North Station in Washington, D.C., February 12, 2010

Collision of Two Miami Metromovers in Miami, FL, July 20, 2010

Collision of Two CN Freight Trains in Two Harbors, MN, September 30, 2010

Motor Vehicle (Contracted By BNSF To Transport Train Crews) struck by BNSF Freight Train at highway-rail grade crossing, Kelso, WA, March 23, 2011

Rear-end collision of two BNSF Trains, Red Oak, IA, April 17, 2011

PATH train collision with bumping post at end of station platform, Hoboken, NJ May 8, 2011

Rear-end collision of two CSX freight trains. Mineral Springs, NC, May 24, 2011

Employee fatality while switching cars in Railroad Yard, Bedford Park, IL, July 25, 2011

Employee fatality while switching cars in Railroad Yard, Kansas City, KS, August 15, 2011

Ethanol train derailment, Tiskilwa, IL, October 7, 2011

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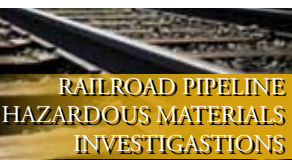
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Pipeline

Rupture of Florida Gas Transmission Company Natural Gas Transmission, Pipeline, Palm City, FL, May 4, 2009

Excavation damage caused rupture of Natural Gas Transmission Pipeline, Cleburne, TX, June 7, 2010

Rupture of hazardous liquid pipeline and release of crude oil, Marshall, MI, July 25, 2010

Rupture of hazardous liquid pipeline and release of Crude Oil, Romeoville, IL, September 9, 2010

Hazardous Materials

Rupture of tank truck cargo transfer hose and release of Anhydrous Ammonia, Swansea, SC, July 15, 2009

Hazardous Materials Support of Ongoing Investigations in Other Modes

In-flight fire and crash of Asiana B-747 Cargo Freighter, Jeju Island, South Korea, July 28, 2011

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Public Hearing: Natural Gas Pipeline Explosion and Fire, San Bruno, CA

The NTSB held a 3-day (March 1-3, 2011) public hearing to gather additional factual information for the investigation into the natural gas pipeline rupture and explosion that occurred on September 9, 2010, in San Bruno, California.

The goal of the hearing was for the NTSB to learn more about the issues identified in the San Bruno pipeline rupture accident. The Board invited expert witnesses to provide sworn testimony. Additionally, several organizations were granted “party status” to the hearing so that they could question the witnesses directly. The witnesses and parties represented a range of government and industry communities and other officials who provide oversight.

Significant Achievements

- Within one year of the San Bruno, California pipeline rupture and fire, the office completed the investigation that included conducting a public hearing, holding a Board Meeting, and issuing urgent safety recommendations during the investigative process.

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- As a result of the Longview Junction accident in Kelso, Washington, several improvements were implemented at the location by BNSF Railway, including sight distance improvements at the crossing, requiring that the locomotive horn be sounded while approaching the crossing, and the installation of an active warning system (that is, lights, gates, and bells) at the crossing.
- As a result of the two Walt Disney World Monorail trains investigation, several improvements were implemented by Walt Disney World Resort including enhanced operating procedures, additional personnel involved in operations, technology installation and upgrades, and a reconfiguration of monorail braking systems.



Figure 26. Longview active warning system.

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Material Laboratory Exam Reports	209
Vehicle Performance Reports	14

The Office of Research and Engineering provides technical and analytical support to each of the NTSB investigative offices. As accident investigations become more complex, investigators rely upon the office’s technological capabilities to assist them in determining the cause of accidents.

Office staff in four divisions—Vehicle Recorder Division, Vehicle Performance Division, Materials Laboratory Division, and Safety Research and Statistical Analysis Division—analyze accident, recorder, and radar data; assess vehicle performance; reconstruct accidents; perform visibility calculations; create animations and vehicle motion simulations; examine materials and structural failures; and probe fires and explosions. In addition, senior medical staff investigate accidents involving medical issues and review toxicology reports. The office works closely with the modal investigative offices to write safety recommendations and is often the principal developer for recommendations on technical matters.

In 2011, the office continued to pursue a number of efforts to expand the NTSB’s technological capabilities by developing close working relationships with outside transportation agencies, both in the United States and abroad. For example, the office has developed a relationship with the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) to further understand fire and its effects by providing technology transfer with the intent of further reducing fire losses, supporting fire investigations, and mitigating fire-related accidents while advancing the science of fire evidence analysis. In 2011, the office and the ATF jointly oversaw a test to evaluate fire detection systems in the cargo areas of airplanes. Staff members in the office’s

Safety Research and Statistical Analysis Division and Vehicle Recorder Division also continue to work closely with international aviation safety organizations to facilitate the extraction and standardization of aviation safety data and to improve its availability and use.

The office helped to advance the NTSB’s use of public forums to focus attention on specific safety issues during 2011. Staff from the Safety Research and Statistical



Figure 27. An NTSB fire and explosion investigator prepares a test at the fire laboratory of the Bureau of Alcohol, Tobacco, Firearms and Explosives to evaluate the fire detection systems of aircraft cargo bays. The inset photo shows the fire test underway.

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Analysis Division supported the Oversight of Public Aircraft Operations forum by providing crucial data to Board Members and served on the technical panel for the Truck and Bus Safety forum. For the Airplane Fuselage Structural Integrity forum, staff from the Materials Laboratory Division served on the technical panel to gain a better understanding of industry perspectives on this topic.

Upgrades to the office's laboratory equipment in 2011 have allowed the NTSB to maintain its state-of-the-art analytic capabilities in accident investigations. For example, the new nanofocus ultra high-resolution X-ray inspection system aids vehicle recorder specialists to recover data from microcircuit devices and enables metallurgists to evaluate defects in aviation components such as helicopter main rotors and fuselages. Forensic cell



Figure 28. An NTSB materials technician uses a scanning electron microscope in the agency's laboratory.

phone hardware and software lets staff download information from cell phones, which increasingly have become a valuable investigative tool. The office also purchased a 3-D scene laser scanner, which enables vehicle performance staff to obtain precise measurements of accident scenes to produce vehicle performance studies and accident reconstruction animations. These and other newly purchased equipment during the year have expanded the office's ability to support investigations in all modes of transportation.

Safety Research and Statistical Analysis Division

The Safety Research and Statistical Analysis Division staff includes transportation research and aviation data analysts, who provide statistical support to other NTSB offices, respond to requests for statistical data from the public, including Congress, and develop safety studies and other safety research products to further the NTSB safety mission. In 2011, staff supported numerous accident investigations and engaged in a broad variety of research and support activities for Board Members and other offices. These activities included completing one safety study, continuing research for two other safety studies, producing an annual aviation accident data report, generating data reports to support investigations, and participating in numerous presentations and training for internal and external organizations. The following section discusses several safety studies that were completed or started (in 2011) and are currently in progress by the Safety Research and Statistical Analysis Division.

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Airbag Performance in General Aviation Restraint Systems

In 2003, airbags were first certificated for pilot and copilot seats on general aviation (GA) aircraft, and as of August 2010, they had been installed in nearly 18,000 seats in over 7,000 GA aircraft. Unlike automotive airbags that typically deploy from the steering wheel, instrument panel, or above the window, airbags in GA aircraft are installed in the lap belt or shoulder harness portions of the restraint system and are designed to deploy outward from the pilot or occupant. Sled tests conducted under controlled conditions have suggested that aviation airbags may increase survivability and reduce injury in actual aviation accidents; however, no systematic evaluations have been conducted to evaluate their efficacy in real world scenarios. Therefore, in 2006, the NTSB initiated an exploratory case series study to assess airbag performance in GA accidents. The goals of the study were (1) to examine the effectiveness of airbags in mitigating occupant injury in GA accidents, (2) to identify any unintended consequences of airbag deployments, and (3) to develop procedures to assist investigators in documenting airbag systems in future investigations.

During the three-year data collection period, researchers tracked 145 notifications of events (including 88 accidents) involving airbag-equipped airplanes and conducted field investigations of 18 of those events. Ten airbag-equipped GA airplane accidents involving 25 occupants met the study criteria and were subjected to a full review and analysis by a multidisciplinary team. The accidents represented a range of crash severities and included survivable accidents with and without airbag deployments.

Of the 88 accidents involving airbag-equipped airplanes that were identified during the study period, about two-thirds (66 percent) had no airbag deployment and no occupant injuries. An additional 22 percent had reductions in survivable space or crash forces that were not survivable. Therefore, airbags would only have been expected to yield a benefit in a relatively small (12 percent) proportion of accidents. Within that window of accident severity, the NTSB concluded that aviation airbags can mitigate occupant injuries in severe but survivable crashes in which the principal direction of force is longitudinal.

During the course of the study, the study team also discovered several potential issues that may compromise occupant safety associated with the use, adjustment, or design of restraint systems. The report discusses steps that could be taken to address these safety issues and suggests future research directions in the area of GA occupant protection.

Finally, as a result of the study, guidance for NTSB investigators was developed and disseminated, including a formal process for gathering data about airbag installations and deployments in accident aircraft.

Safety Recommendations Issued

As a result of its safety study, the NTSB issued six recommendations to the FAA.



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Report on Curbside Motorcoach Safety

Motorcoach safety has received increased public attention as a result of two fatal accidents during 2011. The deadliest of these accidents occurred on March 12, 2011, in the Bronx borough of New York City. In that accident, a 1999 Prevost motorcoach, operated by World Wide Travel of Greater New York, was traveling along Interstate 95 when it departed the interstate to the right, crossed over the shoulder into a roadside barrier, and rolled onto its side. The front of the motorcoach then collided with the support pole for an overhead cantilevered highway sign. Of the 33 occupants aboard the bus, 15 were fatally injured, and 18 received injuries ranging from serious to minor. World Wide Travel was operating a curbside service, making 14 roundtrips daily between the Mohegan Sun Casino in Uncasville, Connecticut, and New York City.

The NTSB conducted an investigation of motorcoach safety in 2011 with a focus on scheduled interstate curbside operations. The objectives of this investigation were to (1) describe the characteristics of the curbside business model among interstate motorcoach carriers; (2) describe the safety record of interstate motorcoach carriers, including those that use a curbside business model; and (3) evaluate the adequacy of safety oversight for motorcoach carriers using a scheduled curbside business model.

Of the 4,172 active interstate motorcoach carriers operating in the United States, 71 were identified as scheduled motorcoach carriers providing curbside service. Although accidents among all types of interstate motorcoach carriers (including those applying the curbside business model) are infrequent, curbside carriers have higher fatal accident and death rates and higher out-of-service rates resulting from driver violations (specifically, fatigued driving and driver fitness violations) compared with conventional carriers. Curbside carriers also have higher driver fitness violation rates and out-of-service rates, and they are overrepresented in driver logbook violations. The safety record of individual curbside carriers varies, with some carriers having very good safety records and others having worse safety records.

In addition, the oversight for this segment of the motorcoach industry has several challenges. FMCSA and state investigators are overburdened by the number of inspections and compliance reviews that need to be accomplished to properly assess a motor carrier's safety performance due to the large number of motor carriers that the investigators have to oversee in addition to motorcoach carriers. The prohibition of routine en route inspections, the minimal requirements for obtaining new operating authority, the inconsistent enforcement of the requirement to submit mileage and other essential information to the FMCSA, and language barriers all indicate that oversight of curbside carriers is more challenging than that for other segments of the motorcoach industry.

The NTSB concluded that motorcoach safety is not a function of whether passengers are picked up and dropped off at a curbside or a terminal or how much passengers are charged for fares. Rather, motorcoach safety, including curbside motorcoach safety, is strongly influenced by the management of the carriers that own these vehicles and the drivers that operate them.

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The Safety of Experimental Amateur-Built Aircraft

In 2011, the NTSB began conducting a study of experimental amateur-built (EAB) aircraft to evaluate the safety of this growing and innovative segment of general aviation. In addition to using the information gathered during its accident investigations, the NTSB has been working with the FAA, the Experimental Aircraft Association, and individual owners and builders to evaluate a range of issues unique to these aircraft. As part of the study, the NTSB has conducted in-depth investigations of 224 E-AB aircraft accidents that occurred during 2011, 54 of which resulted in 67 fatalities. This study will provide the NTSB with a better understanding of the safety of E-AB aircraft.

Characteristics of Single-Unit Truck Accidents Resulting in Hospitalizations

Garbage trucks, delivery vans, dump trucks, and enlarged pickup trucks exceeding 10,000 pounds all are considered single-unit trucks. Existing data suggest that a substantial number of deaths and injuries arise from accidents involving these trucks. Each year from 2007 through 2009, more than 900 people were fatally injured and about 39,000 others received non-fatal injuries as a result of collisions with single-unit large trucks. Single-unit large trucks are excluded from some safety regulations applicable to longer combination trucks, including improved rear impact guards, conspicuity treatments, and the rule mandating shorter braking distances for newly-manufactured truck-tractors. In 2011, the NTSB began conducting a study of the characteristics of single-unit truck accidents resulting in hospitalizations. Understanding the circumstances in which people are injured in single-unit truck accidents is appropriate in order to determine whether these regulatory exclusions are justified for all single-unit truck body types. In addition, this study will explore whether collision avoidance technologies and other safety equipment may be appropriate for some single-unit cargo types.

Materials Laboratory Division



Figure 29: An NTSB metallurgist examines pieces of ruptured fuselage skin from a Boeing 737.

The Materials Laboratory Division is comprised of metallurgists, materials scientists, mechanical engineers, and fire and explosion specialists. Staff members examine, analyze, and test parts and wreckage from more than 100 accidents in a typical year in support of investigations from all transportation modes. In addition to fracture surface evaluation (fractography) and other traditional failure analysis testing,

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the staff generates finite element models of structures to evaluate stress and deformation patterns. In 2011, division staff completed 209 reports for 143 accident cases and launched to 6 accident sites. Among the accident sites that staff launched to were the multiple-fatal motorcoach accident in the Bronx borough of New York City and the Amtrak train-truck collision in Miriam, Nevada. Staff also launched to the Point Mugu Naval Air Station in Port Hueneme, California, to support the investigation of an engine fire during takeoff of a Boeing 707-321B operated by an air refueling contractor to the military.

In 2011, an investigation by staff in the Materials Laboratory Division helped to generate an aircraft service bulletin. For a multiple-fatal accident involving an experimental homebuilt helicopter in Rock Springs, Arizona, NTSB mechanical engineers concluded that the main rotor head spindle failed due to fatigue and completed factual reports on this case. Because of this accident and the ensuing investigation, the manufacturer issued a mandatory service bulletin for this homebuilt helicopter kit.

Vehicle Performance Division

The Vehicle Performance Division develops computer simulations of vehicle and occupant motion, produces video animations of accident scenarios, and participates in and directs research into fluid sciences and other special projects. Computational and engineering graphics technology are used to provide an accurate time-motion history of the sequence of events leading to an accident and to show vehicle and occupant motion, as well as the underlying causes for that motion.

Graphic and visual arts specialists from the Vehicle Performance Division produced accident reconstruction animations for four Board Meetings during 2011. These animations include the highway accident in Munfordville, Kentucky, between a tractor-trailer and a passenger van and the crash during approach to landing of a FedEx airplane in Lubbock, Texas. Staff also produced reconstruction animations for the marine accidents of the tank vessel Eagle Otome near Port Arthur, Texas, and the accident involving the DUKW 34 passenger vessel near Philadelphia, Pennsylvania.

Vehicle Performance Division staff completed several studies in different technical areas to support accident investigations in 2011. Aerospace engineers conducted eight aircraft performance studies, including four which were used in Board Meetings. Among the accidents that staff produced performance studies for were the general aviation accident in Aleknagik, Alaska, that fatally injured five people, including former senator Ted Stevens, and the Pilatus PC-12 accident in Butte, Montana, that killed 14 people, including 7 children. Staff also completed two radar studies, two biomechanics reports, one visibility study, and one video study in 2011.

Vehicle Recorder Division

The Vehicle Recorder Division received 509 devices and completed 337 readouts, transcripts, and studies in support of aviation, rail, marine, and highway investigations in 2011. The

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division's high volume of workload continued, because of (1) the expanded use of advanced technology such as global positioning system (GPS) units and avionics displays, which can record data on aircraft not otherwise equipped with flight recorders, (2) a proliferation of video recordings and still images from sources such as installed cameras, handheld cameras, and security cameras, and (3) continued support for requested for international aviation investigations (54 foreign recorders received).

In 2011, staff assisted every NTSB modal office by downloading information from a wide range of recording devices, from rail event, cockpit voice, and flight data recorders to GPS units. Recorder specialists extracted information from the image and event recorders from the lead locomotive involved in the multiple-fatal BNSF accident near Red Oak, Iowa. For the collision between the USCG vessel *CG 33118* and a Sea Ray recreational vessel in San Diego Bay, California, that resulted in the fatal injury of an 8-year-old boy and serious injuries to four other people, recorder engineers examined two GPS units and a multifunction display chartplotter device. Staff also extracted flight recorder information from the rapid decompression accident involving a Boeing 737 in Yuma, Arizona, that was caused by a hole in the fuselage.

Staff continues to assist in special foreign aviation investigations, as specified in international treaties. Representatives from the division coordinated with France's Bureau of Enquiry and Analysis for Civil Aviation Safety and witnessed the download and readout of the cockpit voice recorder and flight data recorder from Air France flight 447, which were submerged for nearly two years after the flight crashed into the Atlantic Ocean in 2009.

Vehicle recorder staff produced 15 study and factual reports in 2011. In support of two multiple-fatal motorcoach accidents, factual reports were completed for information retrieved from a transmission control module, an antilock braking system module, and two engine control modules. For foreign accident investigations, staff generated a sound spectrum report for the UPS Boeing 747400 in-flight fire and crash that occurred in Dubai, United Arab Emirates.

Medical Factors

Medical staff typically participate in over 100 NTSB accident investigations in all transportation modes each year, evaluating and addressing medical issues through formal factual and analytical reports, safety recommendations, coordination with other agencies, and formal presentations to the NTSB and external audiences. Staff provided input and assistance for the *Airbag Performance in General Aviation Restraint Systems* safety study, which was adopted by the Board on January 11, 2011. Medical staff also provided assistance to several Board Meetings for accident investigations in 2011. For the De Havilland floatplane crash, near Aleknagik, Alaska, that fatally injured five people, medical staff reviewed the forensic report regarding the pilot and completed a medical records information report. For the crash of a New Mexico State Police helicopter during a search and rescue mission near Santa Fe, New Mexico, which resulted in multiple fatalities, medical staff addressed survivability issues.

Significant Achievements

- The office was instrumental in completing within one year the investigation into the PG&E natural gas transmission pipeline rupture and fire in San Bruno, California.
 - For this investigation, staff produced 12 factual reports that discussed pipeline and fire details. To produce these reports that provided important findings into the accident, staff studied such issues as the materials properties of the ruptured pipe and aspects of the explosion and resultant fire. For example, metallurgists analyzed the fractures, microhardness, and structural composition of seam and girth welds; and fire and explosion specialists examined the scene of the natural gas-fueled fire that occurred after the rupture of the pipeline.
- The office conducted aircraft performance studies that provided the basis for several safety recommendations to the FAA in 2011.
 - For the Empire Airlines flight 8284 investigation, staff's aircraft performance study resulted in a recommendation requiring increased use of airplane performance monitoring systems on certain airplanes to minimize hazards associated with ice and to alert flight crews of icing issues.
 - For the East Coast Jets flight 81 investigation, staff's aircraft performance study produced a recommendation for the FAA to work with industry to provide guidance to certain airplane operators on how to conduct landing distance assessments when landing on wet runways.



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Aviation Accident Launch Support	5
Highway Accident Launch Support	3
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Testimony to State Legislative Committees	12

The Office of Communications includes the Office of Safety Advocacy, the Office of Public Affairs, the Office of Government Affairs, and the Office of Transportation Disaster Assistance (TDA). The Office of Communications provides central

and coordinated leadership for the timely engagement and coordination of communications with the NTSB’s external stakeholders, such as other Executive Branch agencies, Federal and state legislators, the news media, the transportation industry, those directly involved in transportation accidents and their families, and the general public.

The office’s primary functions include ensuring that Federal, state, and local government stakeholders are accurately and effectively informed of the NTSB’s mission, including providing testimony to Congressional and State legislative committees several times during the year. Complete copies of NTSB testimony are available on the agency’s website at <http://www.nts.gov/news/speeches.html>. The office also maintains the NTSB’s website, which is vital in disseminating information to the public and is the agency’s point of contact for members of the public and the news media. Other primary office functions include (1) encouraging implementation of the agency’s state-related safety recommendations; (2) implementation and tracking agency-wide advocacy efforts through the development of the agency’s flagship communications product, the *Most Wanted List*; (3) coordinating the NTSB’s overall strategy for safety advocacy through the traditional media outlets, as well as through social media; industry, and other non-governmental organizations engaged in safety advocacy; and, (4) assisting the victims of aviation disasters and their families through the Transportation Disaster Assistance office.

Transportation Disaster Assistance

In 1996, Congress passed the Aviation Disaster Family Assistance Act, which gave the NTSB responsibility for assisting victims of aviation disasters and their families. The TDA’s primary responsibility, on behalf of the NTSB, involves coordination among Federal agencies, commercial airlines, state and local authorities, and the families of victims. In 1997, Congress enacted the Foreign Air Carrier Family Support Act to require that foreign air carriers operating flights to and from the United States meet the same standards of victim assistance as their U.S. counterparts. In 2008, the Rail Passenger Disaster Family Assistance Act extended to victims of high speed rail and Amtrak accidents the same support received by aviation accident victims and their families.

When TDA staff responds to an accident, a team of specialists with expertise in victim services, emergency operations, and victim recovery and identification join the investigative staff at the accident site. Primary responsibilities of the team upon arrival at an accident



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site include coordinating resources of local, state, and Federal agencies; establishing a Joint Family Support Operations Center; and ensuring that the airline or railroad establishes a Family Assistance Center. In addition, the team maintains contact with family members following the on-scene phase of an accident investigation to provide investigative updates, notifies families of public hearings and/or Board meetings, and answer various other questions and concerns. Staff also manages ongoing requests for information from family members via phone and e-mail.

The division is responsible for responding to all major aviation accidents and major rail passenger disasters. Increasingly, TDA staff are routinely launched or engaged in other modal accident investigations that are not mandated by statute.

Transportation Disaster Assistance Partnerships

The TDA staff participated in 8 accident launches, supported nearly 600 outreach activities/requests and conducted five training courses at the NTSB Training Center. They provided support to family members who attended several Board Meetings and public forums. The staff also provided guidance and technical expertise to the Chairman and Board Members regarding family member attendance at Board Meetings, forums, and symposia.

The NTSB has a memorandum of agreement with the American Red Cross and several Federal agencies including the Department of Homeland Security, the Department of Defense, the Department of Health and Human Services, the Department of State, and the Federal Bureau of Investigation. Together, these agencies collaborate to support both the investigative and family assistance efforts at major accidents.

TDA conducts briefings and training to a variety of Federal, state and local agencies, transportation industry groups, and others involved in the family assistance response. The list includes the City of Philadelphia, Continental/United Airlines, European Aviation Assembly, Chemical Safety Board, Southern California Red Cross Chapter, Alabama Department of Public Health, Suffolk County, New York, National Aeronautics and Space Administration, Mine Safety Health Administration, New York City Office of Chief Medical Examiner, Armed Forces Medical Examiner System, Idaho Department of Public Health, Michigan Medical Examiner and Coroner Training Program, JetBlue, Mississippi Coroner's Association, Federal Bureau of Investigation, Amtrak, State of Rhode Island Office of Emergency Management, and the US Department of Transportation.

Accident Launch Support

Motorcoach accident, New York, NY, March 12, 2011.

Office of Communications staff assisted the Office of Highway Safety in their launch by facilitating interactions with local law enforcement, emergency management and other response agencies. Given the location of the accident, media coverage for the accident investigation was intense. Also, there was considerable interest from Federal, state and



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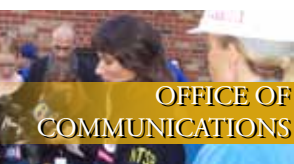
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local leaders. The TDA staff also coordinated with the Office of Chief Medical Examiner to address medicolegal concerns. Staff also met with several family members and survivors to provide information on the investigation.

Motorcoach accident, Doswell, VA, May 31, 2011.

This accident closely followed the March 2011 motorcoach accident in New York. Given the high visibility of the so-called “curbside bus operations”, Public Affairs, Government Affairs and TDA staff, assisted the Office of Highway Safety in their investigation. A number of press conferences were conducted during the launch and the Member-on-scene handled numerous media interviews. TDA staff also coordinated with the Virginia Medical Examiner Office to address medicolegal concerns. Staff also met with several family members and survivors to provide information on the investigation.

Amtrak/combination Vehicle Collision, Miriam, NV, June 24, 2011.

This accident was the first implementation of the provisions of the Rail Passenger Disaster Family Assistance Act of 2008. Four TDA staff members launched to Nevada to coordinate with Amtrak and several local agencies in the Reno, Nevada, area to ensure effective support for family members. Staff was involved in the management of the family assistance center and met with several family members to provide information on the investigation. Because this accident involved Amtrak, it generated significant media and Federal and State government interest. Staff from Public Affairs and Government Affairs were launched to assist the Member-on-scene with press conferences and media appearances, as well as briefings with elected officials.

Reno Air Race accident, Reno, NV, September 16, 2011.

This accident generated considerable public attention as it is the only air race conducted in the United States and one that previously had not experienced an accident involving spectators. A number of Office of Communications staff were launched to assist the Office of Aviation Safety. OC staff facilitated coordination and interaction with Federal and state elected officials, national and local media, local law enforcement, and emergency management and other response agencies. The TDA staff interacted with the airport authority, medical examiner, Red Cross, and nearly twenty other agencies to ensure effective support of family members. Staff also met with several family members and survivors to provide information on the investigation.

Sightseeing Helicopter Crash near Lake Mead, NV, December 7, 2011.

The Office of Communications launched staff from Public Affairs, Government Affairs, and TDA to support the Office of Aviation Safety during this launch. Staff facilitated media interviews and press conferences, and interactions with local law enforcement, emergency management, State and Federal authorities, elected leaders, and other response agencies.

Additional Launch Support

- Aviation accident, Long Beach, CA, March 16, 2011
- Aviation accident, Demopolis, AL, July 9, 2011
- Helicopter accident, New York City, NY, October 4, 2011
- Non-launch support: TDA staff also provided support for family members in over 120 general aviation and other modal accidents this year

Public Hearings, Forums and Symposiums

Family Assistance: Promoting an International Approach for the Transportation Industry Conference

This 2-day conference brought together family members, transportation accident investigation agencies, transportation industry representatives, government agencies, and the media to share perspectives on best practices and lessons learned in providing family assistance following transportation accidents in an international context. Coinciding with the 15th anniversary of the Aviation Disaster Family Assistance Act and the 10th anniversary of ICAO Circular 285, the conference, which drew over 200 attendees representing more than 25 countries, was a unique opportunity to learn firsthand from those involved worldwide in family assistance.

The first day included four panel discussions featuring family members, transportation industry representatives, vendors, non-governmental organizations, transportation accident investigative agencies, and the media examining transportation family assistance from their perspectives. On the second day, TDA staff provided an overview of family assistance operations.

Significant Achievements

- Initiated a new [Most Wanted List](#), which was adopted by the Board and presented at a June 2011 press conference. The new Most Wanted List is comprised of 10 issue areas. Advocacy efforts emphasize a comprehensive approach to addressing the issue areas, and are not solely focused on individual safety recommendations.
- Unveiled a new website design at www.nts.gov, standardizing the look and feel of the agency's internet presence and expanded outreach to external stakeholders with Twitter and a NTSB YouTube channel.
- Supported the announcement of a safety recommendation calling for the first-ever, nationwide ban on the non-emergency use of portable electronic devices by all drivers, with extensive media coverage and governmental interests.



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Table 9. 2011 Administrative Law Judges Statistics.

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Total Cases Received	348
Total Cases Closed	329
Emergency Cases Closed	135
Challenges to Emergency Determinations	33
Hearings Held	66
Board Opinions and Orders (O&O)	38
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Since 1967, the NTSB has served as the “court of appeal” for certificate holders such as airmen, mechanics, or mariners whenever the FAA or the USCG takes a certificate action.

The NTSB’s administrative law judges (ALJs) hear, consider, and issue initial decisions on appeals filed with the Board. Included are appeals from orders issued by the

FAA’s Administrator that amend, modify, suspend or revoke, in whole or in part, certificates of airmen, air agencies, and air carriers for alleged violations of the *Federal Aviation Regulations* or for lack of qualification; appeals about FAA actions denying applications for the issuance or renewal of airman certificates; and appeals of certain FAA civil penalty orders issued by the FAA against pilots, flight engineers, mechanics, or repairmen where the amount in dispute is less than \$50,000. The judges also adjudicate claims for fees and expenses stemming from certificate and civil penalty actions under the Equal Access to Justice Act (EAJA).

The NTSB currently has four administrative law judges. Two are based in Washington, D.C., and hold hearings primarily in the eastern half of the U.S. The other two are based in Arlington, Texas, and Denver, Colorado, and hear cases primarily in the western half of the country.

The ALJs at the NTSB are wholly independent decision makers who are bound by the Administrative Procedures Act (APA) to approach each case impartially and fairly. Their role is to provide a full and fair hearing to ensure due process to all parties. ALJs consider all of the evidence objectively, weigh the facts and apply the law to reach an independent, informed and, above all, a just decision. The protection of decisional independence for the parties who appear before ALJs in aviation cases is further assured by the fact that the ALJs who hear and decide such cases work within the NTSB, an agency completely separate and distinct from the Federal Aviation Administration, the agency which investigates, initiates and prosecutes aviation administrative actions.

Either the certificate holder or the FAA may appeal the judges’ decisions to the NTSB’s five-member Board. The Board’s review on appeal of its administrative law judges’ decisions is based on the record of the proceeding, which includes hearing testimony (transcript), exhibits, and the judge’s decision, as well as appeal briefs submitted by both sides. A certificate holder can appeal the Board’s decision to the U.S. Court of Appeals. The FAA also has the right to appeal the Board’s decisions to the U.S. Court of Appeals when it (the FAA) determines that the Board’s decision “will have a significant adverse impact” on the FAA’s aviation safety duties and powers. Airmen and mechanics have the right to appeal all adverse Board decisions to the Court of Appeals.

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Upon review of the Board's decision, the Court of Appeals has the power to affirm, modify, or set aside the decision in whole or in part—or, if need is found, to order further proceedings by the Board. The decision of the Court of Appeals is subject to review by the U.S. Supreme Court on writ of certiorari. In April 2000, the U.S. Congress enacted Section 716 of the Aviation Investment and Reform Act for the 21st Century (Public Law 106- 181). This Act expanded the NTSB's jurisdiction to include review of FAA designations of safety enforcement actions as emergencies, which require an order to be effective immediately, upon petition by the affected certificate holder. The Board has delegated its review authority to its administrative law judges. There is no administrative review of the administrative law judges' decisions in these cases.

Marine certificate actions are heard first by the USCG's administrative law judges and may be appealed to the USCG Commandant. The ruling of the Commandant may then be appealed to the NTSB. The Board then follows the same appellate process as it does in considering the initial decisions of its law judges in aviation cases. In 2011, the Board received three marine appeals and issued two rulings on marine cases.

Significant Achievements

- The Office of Administrative Law Judges disposed of 75 percent of its caseload in fiscal year 2011.
- Three hundred thirty-nine aviation certificate appeals were filed with the NTSB's Administrative Law Judges in 2011. The Board's judges held 66 hearings and closed 329 cases in 2011. The Office of Administrative Law Judges received 135 emergency cases in 2011, which, by statute, require expedited handling and hearing as shown in Figure 30. The NTSB has no control over the number of emergency cases received because these cases are issued by the FAA.
- Thirty-eight of the judges' decisions were appealed to the NTSB Board. The Board decided 41 appeals, remanding 9 cases to the judges for further proceedings. Four of the Board's decisions were appealed to the U.S. Court of Appeals, which rendered nine decisions in 2011. The Court affirmed the Board in six cases and remanded two cases to the Board for further proceedings. The remaining case was dismissed voluntarily.

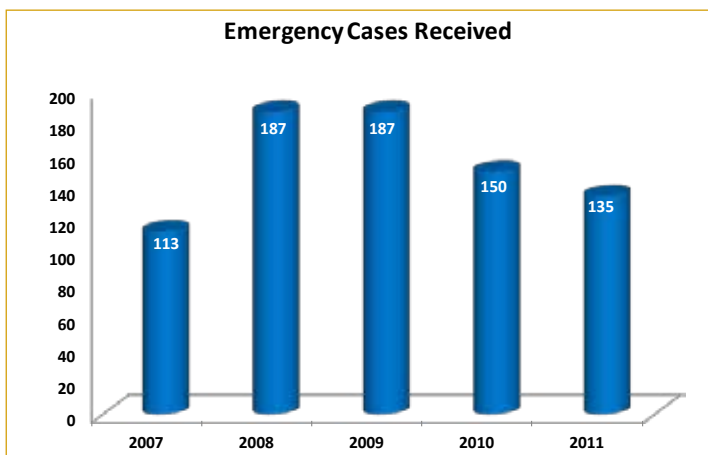


Figure 30. Emergency Cases Received by Year.

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NTSB Training Center

Table 10. 2011 Training Center Statistics.

NTSB Training Center 2011 At A Glance	
Courses, Programs, Seminars Offered	50
Workforce Development Courses	28
Student (Individual) Attendance	1291
External Participants	721
Foreign Participants	143
NTSB Participants	427
Federal Partnerships	16

Located in Ashburn, Virginia, the NTSB Training Center provides training opportunities for all NTSB employees and others from the transportation community through a variety of course offerings in the various modes of transportation. The core of the program continues to be key investigative courses that focus on competencies

important to safety investigations for NTSB staff and outside participants. The Workforce Development curriculum is open specifically to NTSB staff and offers employees access to additional courses focused on career development and on the improvement of management, leadership, and critical thinking skills. Vacant seats are open to employees of other Federal agencies as a way to maximize training opportunities and knowledge management for the Federal workforce and for the best stewardship of taxpayers' training dollars. In particular, investigators from the NTSB and from other organizations in the transportation community use the Training Center as a means of improving their accident investigation techniques.

NTSB Employees and Federal Workforce Community

During 2011, the NTSB continued to refine the programs offered at the Training Center while ensuring that the agency's critical investigative responsibilities were not negatively affected. These improvements support the NTSB's accident investigation mission and help promote transportation safety. In addition, the NTSB continued its focus on improving training programs for NTSB employees. The Workforce Development Program was launched in 2007 for NTSB employees as the signature effort to improve leadership and management training. Since the program's inception, the NTSB Training Center has offered 259 courses, programs, and seminars in the Workforce Development curriculum. In order to make maximum use of training funds and to act as responsible custodians of public monies, Workforce Development courses were opened up to other government agencies as seats became available. This maximized attendance at the courses and created a collegial atmosphere with other agencies, particularly those in the small agency council, where limited training resources are shared between agencies. The Training Center also began planning for a focus on technical training for NTSB investigators in 2012. Approximately two-thirds of the Workforce Development Budget will be channeled into that area. Examples courses under development include Advanced Composites, Witness Interviewing, Rotax Engines and Pratt & Whitney Engines 101.



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Transportation Community and Partnerships



Figure 31: The NTSB Training Center in Ashburn, VA.

The Training Center attracts not only members of the U.S., but also of the worldwide, transportation community from many governmental agencies and transportation entities. Participants have come to rely on the training received at the Training Center and either return for additional training or encourage colleagues to attend courses offered in accident investigation, transportation disaster response, media

response, human factors, accident photography, and skills in conducting presentations. Furthering its commitment to meeting the training needs of those in other areas of the government and the transportation safety and security and emergency response communities, the NTSB Training Center continues to build upon its alliances with private organizations and Federal agencies. For example, the Training Center again worked with the Army National Guard (ANG) Safety Center at Fort Rucker to develop and present a 2-week Aviation Accident Investigation School exclusively tailored for ANG. It was presented for the second time in 2011, and ANG has requested that it be offered annually. We plan to offer this course again in 2012. The NTSB Public Affairs and Managing Communications Course was offered to various entities including Chattanooga Metropolitan Airport Authority and Delta Airlines. We have also been contacted by the FBI to develop a 3-day Aviation Investigation Course for their Civil Aviation Security Program stations throughout the country in order to reach over 400 Special Agents in that program.

Continuing Education Units

The NTSB Training Center is authorized by the International Association for Continuing Education and Training (IACET) to award continuing education units (CEUs) for many of its courses. The IACET, whose members include 650 businesses, government agencies, higher education institutions, nonprofit corporations, and individuals, authorizes select organizations to issue CEUs only when they can demonstrate a consistent adherence to strict educational training guidelines and protocols. Many organizations and agencies use these credits for staff development, and individuals use them to maintain professional certifications.



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Significant Achievements

- The NTSB Training Center continued and expanded the Investigative Skills courses for NTSB investigative staff to educate new investigators on NTSB policies, procedures, and techniques.
- Initiated a language training program to develop investigators skills in communicating with their foreign counterparts. This has been an extremely popular program as the number of Foreign launches has dramatically increased over the past 10 years.
- Began development of a series of Technical Training Courses for investigators to include:
 - Advanced Composite Materials
 - Witness Interviewing
 - Lead Investigator Course
 - Critical Thinking
 - Root Cause Analysis
 - Safety Management Systems in Transportation
 - Traffic Crash Reconstruction
 - Traffic Crash Investigation



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Member Profiles



DEBORAH A.P. HERSMAN
Chairman

Appointed by President Obama and unanimously approved by the U.S. Senate in 2009 and 2011, Deborah A.P. Hersman is serving her second term as Chairman. An NTSB Board member since her initial appointment by President Bush in 2004, she is concurrently serving a second five-year term as a Board member, which expires December 2013.

Chairman Hersman has been the spokesperson on the scene of 19 major transportation accidents, chaired dozens of NTSB hearings, and testifies regularly before the U.S. Congress. As Chairman, she has advocated for a more transparent and accountable organization by making more information about NTSB investigations available to the public on the agency's website, holding more public meetings to discuss safety issues facing the transportation industry, and embracing social media to communicate with stakeholders and citizens.

The NTSB has completed timely and high-profile accident investigations under her leadership:

- 2009 crash of a Colgan Air commuter airplane near Buffalo, NY
- 2009 collision of two Washington, DC, Metro trains near Fort Totten Station
- 2009 mid-air collision over the Hudson River, near Hoboken, NJ
- 2010 collision between a barge and tour vessel on the Delaware River in Philadelphia, PA
- 2010 pipeline rupture in San Bruno, CA
- 2010 crash of a chartered airplane carrying Senator Ted Stevens in Aleknagik, AK.

Hersman has focused on raising public awareness on the dangers of distracted driving, improving child passenger safety, and helping accident victims and their families. Known as a passionate safety advocate, she describes the NTSB as “the conscience and the compass of the transportation industry.”

From 1999-2004, Hersman was a Senior Staffer on the U.S. Senate Committee on Commerce, Science and Transportation, and from 1992-1999 she served as Staff Director and Senior Legislative Aide to West Virginia Congressman Bob Wise. In those roles, she helped negotiate passage of the Motor Carrier Safety Improvement Act of 1999, Pipeline Safety Improvement Act of 2002, Transportation Equity Act of the 21st Century, and Amtrak Reform and Accountability Act, among other initiatives.

Hersman received B.A. degrees in Political Science and International Studies from Virginia Tech, and a M.S. in Conflict Analysis and Resolution from George Mason University. She holds a commercial driver's license (with passenger, school bus, and air brake endorsements) as well as a motorcycle endorsement.

Member Profiles



CHRISTOPHER A. HART
Vice Chairman

Christopher A. Hart was sworn in as a Member of the National Transportation Safety Board on August 12, 2009. He was designated by the President for his second two-year term as Vice Chairman of the Board on August 23, 2011.

Member Hart joined the Board after a long career in transportation safety, including a previous term as a Member of the NTSB. Immediately before returning to the Board, he was Deputy Director for Air Traffic Safety Oversight at the Federal Aviation Administration. He was previously the FAA Assistant Administrator for the Office of System Safety.

He served as a Member of the NTSB from 1990 to 1993. After leaving the Board, he served as Deputy Administrator of the National Highway Traffic Safety Administration, before moving to the FAA in 1995.

From 1973 until joining the Board in 1990, Member Hart held a series of legal positions, mostly in the private sector. He holds a law degree from Harvard University and Master's and Bachelor's degrees in Aerospace Engineering from Princeton University. He is a member of the District of Columbia Bar and the Lawyer-Pilots Bar Association.

Member Hart is a licensed pilot with commercial, multi-engine and instrument ratings.

Member Hart's family has a tradition of accomplishment in the field of transportation. His great uncle, James Herman Banning, was the first African-American to receive a pilot's license issued by the United States government, in 1926.

His term expires December 31, 2012.

Member Profiles



Robert L. Sumwalt
Member

Robert L. Sumwalt was sworn in as the 37th Member of the National Transportation Safety Board in August 2006, whereupon President George W. Bush designated him as Vice Chairman of the Board for a two-year term. In November 2011, President Barack Obama reappointed Member Sumwalt to an additional five year term. His term of office as a Board Member will run until December 31, 2016.

Prior to coming to the Board, Mr. Sumwalt was Manager of Aviation for the SCANA Corporation, a Fortune 500 energy-based company.

Mr. Sumwalt was a pilot for 32 years, including 24 years as an airline pilot with Piedmont Airlines and then US Airways. He logged over 14,000 flight hours and earned type ratings in five aircraft.

Mr. Sumwalt worked on special assignment to the US Airways Flight Safety Department from 1997 to 2004, where he was involved in the development of numerous airline safety programs, and he served on the US Airways Flight Operational Quality Assurance (FOQA) Monitoring Team.

Mr. Sumwalt served as a member of the Air Line Pilots Association's (ALPA) Accident Investigation Board, and he chaired ALPA's Human Factors and Training Group. He was a co-founder of that organization's Critical Incident Response Program, which provides guidance to airline personnel involved in traumatic events such as accidents.

From 1991 to 1999, Mr. Sumwalt conducted aviation safety research as a consultant to NASA's Aviation Safety Reporting System, studying various issues including flight crew performance, improving flight crew monitoring skills, and air carrier de-icing and anti-icing problems.

Mr. Sumwalt co-authored a book on aircraft accidents and has written extensively on aviation safety matters, having published over 85 articles and papers in aviation trade publications. Before joining the Board, he was a regular contributor to Professional Pilot magazine.

In 2003, Mr. Sumwalt joined the faculty of the University of Southern California's Aviation Safety and Security Program, where he was the primary human factors instructor.

In recognition of his contributions to the aviation industry, Mr. Sumwalt received the Flight Safety Foundation's Laura Taber Barbour Award in 2003 and ALPA's Air Safety Award in 2005. He is a 2009 inductee into the South Carolina Aviation Hall of Fame.

Since joining the Board, Member Sumwalt has served as the Chairman of the Board of Inquiry for the following NTSB public hearings and forums:

- May 2011 - Truck and Bus Safety: A Decade of Progress
- October 2010 – Fishing Vessel Safety Forum

- February 2010 - collision of two Washington Metropolitan Area Transit Authority trains near Fort Totten Station, Washington, DC, on June 22, 2009;
- June 2009 - landing of U.S. Airways flight 1549, Airbus A320, N106US, in the Hudson River, near Weehawken, New Jersey, on January 15, 2009;
- February 2009 - safety of helicopter emergency medical services (HEMS) operations.

He has served as the Member on-scene for the following NTSB accident investigations:

- April, 2011 - Southwest Airlines B737-300 rapid decompression and emergency landing due to fuselage crack in Yuma, Arizona;
- September, 2010 – crash of a Freightliner Mid-Size tour bus on Interstate 270 in Bethesda, Maryland;
- July, 2010 - collision involving a barge and an amphibious passenger vessel in the Delaware River, near Philadelphia, Pennsylvania;
- May, 2010 - collision between the Staten Island Ferry Andrew Barberi and the St. George terminal pier in Staten Island, New York;
- September, 2009 - crash of an emergency medical services helicopter that claimed three lives in Georgetown, South Carolina;
- June, 2009 - derailment of a CN train which resulted in the explosion and burning of several ethanol tank cars at a grade crossing in Rockford, Illinois;
- December, 2008 - Continental Airlines flight 1404, a Boeing 737-500 that departed a runway during takeoff roll at the Denver International Airport, and caught fire;
- November, 2007 - collision between an Amtrak passenger train and a standing Norfolk Southern freight train in Chicago, Illinois;
- November, 2007 - rupture and explosion of a liquid propane pipeline in Carmichael, Mississippi;
- July, 2007- crash of a twin-engine Cessna 310R airplane that impacted homes in a residential area in Sanford, Florida;
- October, 2006 - derailment of a Norfolk Southern train in New Brighton, Pennsylvania;

He also accompanied the NTSB Go-Team to Lexington, Kentucky for the on-site investigation of the August 27, 2006 crash of Comair flight 5191.

Mr. Sumwalt is a graduate of the University of South Carolina.

Member Profiles



MARK R. ROSEKIND
Member

Mark R. Rosekind, Ph.D. was sworn in as the 40th Member of the National Transportation Safety Board on June 30, 2010. He was nominated by President Obama and confirmed by the United States Senate for a term that expires December 31, 2014.

Member Rosekind is an internationally recognized fatigue expert who has conducted research and implemented programs in diverse settings, including all modes of transportation. He has published 150 scientific, technical, and industry papers and provided hundreds of presentations to operational, general, and scientific audiences. His contributions have been acknowledged through numerous honors and awards, including the NASA Exceptional Service Medal, six other NASA Group/Team Awards, two Flight Safety Foundation honors (Presidential Citation for Outstanding Safety Leadership, Business Aviation Meritorious Award), and as a Fellow of the World Economic Forum in Davos,

Switzerland. In 2011, Member Rosekind received the Mark O. Hatfield Public Policy Award from the American Academy of Sleep Medicine.

Prior to joining the Board, Dr. Rosekind was Founder, President and Chief Scientist of Alertness Solutions, a scientific consulting firm that specializes in fatigue management. Before establishing Alertness Solutions, Dr. Rosekind directed the Fatigue Countermeasures Program and was Chief of the Aviation Operations Branch in the Flight Management and Human Factors Division at the NASA Ames Research Center. Prior to his work at NASA, Dr. Rosekind was the Director of the Center for Human Sleep Research at the Stanford University Sleep Disorders and Research Center.

Member Rosekind earned his A. B. with Honors at Stanford University, his M.S., M.Phil., and Ph.D. at Yale University, and completed a postdoctoral fellowship at the Brown University Medical School.

Member Rosekind is married and has two children.

Member Profiles



Earl F. Weener
Member

Earl F. Weener, Ph.D. took the oath of office as the 41st Member of the National Transportation Safety Board on June 30th, 2010. He was nominated by President Obama and confirmed by the Senate for a term that expires December 31, 2015.

Member Weener has an accomplished career in aviation as an engineering executive, safety advocate, industry safety spokesperson, engineer and pilot. He has given numerous presentations on aviation safety in airline operations, as well as corporate, business and general aviation safety. Most recently, he was a Foundation Fellow for the Flight Safety Foundation, where he led international industry teams to develop means to reduce accidents through coordinated industry programs in areas such as ground operations and runway excursions.

Prior to his appointment to the Board, Member Weener enjoyed a twenty four year career with the Boeing Company. During his time with Boeing he held a series of Chief Engineer positions, including the Airworthiness, Reliability and Maintainability, and Safety organization, the System Engineering organization, and Safety Technology Development. He also served four years in Washington, D.C., as Boeing's Manager of Engineering and Technical Government Affairs. As well, Member Weener was integrally involved in the initial development of the Boeing two-crew 747 flight deck concept and the development of the 757/767 flight decks, the initial advanced technology commercial transport glass cockpit.

Aside from his professional career in aviation, Member Weener is an experienced commercial licensed general aviation flight instructor and charter pilot, in addition to owning a Beechcraft Bonanza and remaining an active general aviation pilot.

Member Weener also has extensive marine experience. He obtained his U.S. Coast Guard Master's License in 2000. In addition to navigating the waterways of the Pacific Northwest, he spent four years cruising both the inland waterways and coastline of the U.S., living aboard a specially built steel hull trawler. His travels included the East Coast Intracoastal Waterway, the Great Lakes, the waterways from Chicago to Mobile, Alabama, the West Coast, as well as the inside passage to Alaska.

Member Weener earned all three of his academic degrees in Aerospace Engineering from the University of Michigan – his bachelor's degree summa cum laude, master's degree and doctorate.

Among his awards is a 1994 Laurels Award from Aviation Week and Space Technology, and in 2005 he was awarded the Honeywell Bendix Trophy for Aviation Safety. He has served on the Flight Safety Foundation Board of Governors and on the Foundation's Icarus Committee, and International Advisory Committee. He was also a director of the Northwest Bonanza Society.

Member Weener and his wife, Linda, currently reside in Northern Virginia.

Appendix B: Accidents Required to be Investigated Under Section 1131 But not Investigated				
<i>Mode</i>	<i>ACCIDENT DATE</i>	<i>ACCIDENT LOCATION</i>	<i>ACCIDENT CIRCUMSTANCES</i>	<i>REASON NOT INVESTIGATED</i>
<i>Aviation</i>			None to report	
<i>Highway</i>			None to report	
<i>Marine</i>			None to report	
<i>Railroad</i>				
Accidents involving Transit Trains				
<i>RR--Transit</i>	1/1/2011	MTA New York City Transit	Train struck person at station	Limited Board resources
<i>RR--Transit</i>	1/1/2011	Chicago Transit Authority	Train derailed	Limited Board resources
<i>RR--Transit</i>	1/1/2011	Santa Clara Valley Transportation Authority	Train struck intoxicated pedestrian who fell into	Limited Board resources
<i>RR--Transit</i>	1/2/2011	Massachusetts Bay Transportation Authority	Train struck pedestrian	Limited Board resources
<i>RR--Transit</i>	1/2/2011	Santa Clara Valley Transportation Authority	Train struck pedestrian	Limited Board resources
<i>RR--Transit</i>	1/5/2011	MTA New York City Transit	Train struck trespasser	Limited Board resources
<i>RR--Transit</i>	1/6/2011	MTA New York City Transit	Train struck pedestrian	Limited Board resources
<i>RR--Transit</i>	1/11/2011	MTA New York City Transit	Train derailment	Limited Board resources
<i>RR--Transit</i>	1/11/2011	Dallas Area Rapid Transit	Train derailment	Limited Board resources
<i>RR--Transit</i>	1/11/2011	New Orleans Regional Transit Authority	Streetcar derailed. Defective switch.	Limited Board resources
<i>RR--Transit</i>	1/12/2011	Metro Transit	Evacuation due to smoke and small fire.	Limited Board resources
<i>RR--Transit</i>	1/13/2011	New Orleans Regional Transit Authority	Streetcar derailed. Loose switch.	Limited Board resources
<i>RR--Transit</i>	1/13/2011	MTA New York City Transit	Person feeling faint walked into departing	Limited Board resources
<i>RR--Transit</i>	1/15/2011	Bi-State Development Agency	Train struck motor vehicle	Limited Board resources
<i>RR--Transit</i>	1/18/2011	Metropolitan Transit Authority of Harris	Pedestrian struck by vehicle and by force made	Limited Board resources
<i>RR--Transit</i>	1/18/2011	Maryland Transit Administration	Automobile struck train	Limited Board resources
<i>RR--Transit</i>	1/18/2011	New Orleans Regional Transit Authority	Pedestrian struck by streetcar	Limited Board resources
<i>RR--Transit</i>	1/20/2011	MTA New York City Transit	Train struck trespasser	Limited Board resources
<i>RR--Transit</i>	1/20/2011	Massachusetts Bay Transportation Authority	Passenger evacuation from train due to fire	Limited Board resources
<i>RR--Transit</i>	1/20/2011	Los Angeles County Metropolitan	Train struck bicyclist	Limited Board resources
<i>RR--Transit</i>	1/24/2011	MTA New York City Transit	Train struck pedestrian	Limited Board resources
<i>RR--Transit</i>	1/25/2011	Maryland Transit Administration	Train derailment	Limited Board resources
<i>RR--Transit</i>	1/25/2011	Washington Metropolitan Area Transit Authority	Passenger evacuation due to smoke	Limited Board resources
<i>RR--Transit</i>	1/27/2011	Massachusetts Bay Transportation Authority	Train derailment	Limited Board resources
<i>RR--Transit</i>	1/27/2011	Massachusetts Bay Transportation Authority	Train derailment	Limited Board resources
<i>RR--Transit</i>	1/28/2011	MTA New York City Transit	Train struck intoxicated pedestrian who fell into	Limited Board resources
<i>RR--Transit</i>	1/28/2011	MTA New York City Transit	Train struck pedestrian who fell into train	Limited Board resources
<i>RR--Transit</i>	1/28/2011	Miami-Dade Transit	Non transit rail collision	Limited Board resources

Appendix B: Accidents Required to be Investigated Under Section 1131 But not Investigated				
<i>Mode</i>	<i>ACCIDENT DATE</i>	<i>ACCIDENT LOCATION</i>	<i>ACCIDENT CIRCUMSTANCES</i>	<i>REASON NOT INVESTIGATED</i>
<i>RR--Transit</i>	1/28/2011	New Orleans Regional Transit Authority	Train struck motorist making a sudden turn	Limited Board resources
<i>RR--Transit</i>	1/28/2011	MTA New York City Transit	Train struck person at station	Limited Board resources
<i>RR--Transit</i>	1/28/2011	Tri-County Metropolitan Transportation District of	Train struck 76 yr old woman who fell	Limited Board resources
<i>RR--Transit</i>	1/30/2011	MTA New York City Transit	Train struck trespasser	Limited Board resources
<i>RR--Transit</i>	2/1/2011	The Greater Cleveland Regional Transit	Fire under 2nd car of train	Limited Board resources
<i>RR--Transit</i>	2/1/2011	The Greater Cleveland Regional Transit	150 passenger evacuation due to smoke	Limited Board resources
<i>RR--Transit</i>	2/2/2011	Maryland Transit Administration	Train struck person at station	Limited Board resources
<i>RR--Transit</i>	2/2/2011	Southeastern Pennsylvania	Train struck by LRV	Limited Board resources
<i>RR--Transit</i>	2/3/2011	Southeastern Pennsylvania	Auto ran into LRV	Limited Board resources
<i>RR--Transit</i>	2/3/2011	Maryland Transit Administration	Station evacuated due to fire on track	Limited Board resources
<i>RR--Transit</i>	2/3/2011	Maryland Transit Administration	Station evacuated due to fire and smoke in tunnel	Limited Board resources
<i>RR--Transit</i>	2/4/2011	San Francisco Municipal Railway	Historic rail vehicle struck pedestrian	Limited Board resources
<i>RR--Transit</i>	2/4/2011	Southeastern Pennsylvania	LRV hit switch	Limited Board resources
<i>RR--Transit</i>	2/5/2011	San Francisco Municipal Railway	Cable Car collided with pedestrian	Limited Board resources
<i>RR--Transit</i>	2/6/2011	Metropolitan Atlanta Rapid Transit Authority	Train made contact with track personnel	Limited Board resources
<i>RR--Transit</i>	2/6/2011	The Greater Cleveland Regional Transit	Passenger evacuation due to light smoke	Limited Board resources
<i>RR--Transit</i>	2/7/2011	Utah Transit Authority	Train struck pedestrian	Limited Board resources
<i>RR--Transit</i>	2/7/2011	Los Angeles County Metropolitan	Train struck bicyclist	Limited Board resources
<i>RR--Transit</i>	2/8/2011	Valley Metro Rail, Inc.	Train struck motor vehicle	Limited Board resources
<i>RR--Transit</i>	2/9/2011	MTA New York City Transit	Train struck pedestrian who fainted and fell into	Limited Board resources
<i>RR--Transit</i>	2/10/2011	MTA New York City Transit	Train struck pedestrian who fell into train	Limited Board resources
<i>RR--Transit</i>	2/11/2011	San Francisco Municipal Railway	Train derailment	Limited Board resources
<i>RR--Transit</i>	2/11/2011	MTA New York City Transit	Pedestrian running on platform slipped and fell	Limited Board resources
<i>RR--Transit</i>	2/11/2011	Denver Regional Transportation District	Smoke in train cabin due to LRV axle bearing failure	Limited Board resources
<i>RR--Transit</i>	2/12/2011	MTA New York City Transit	Passenger attempting to open doors of moving	Limited Board resources
<i>RR--Transit</i>	2/14/2011	Bi-State Development Agency	Train derailment	Limited Board resources
<i>RR--Transit</i>	2/15/2011	Santa Clara Valley Transportation Authority	Train struck pedestrian	Limited Board resources
<i>RR--Transit</i>	2/16/2011	Valley Metro Rail, Inc.	Train collided with auto	Limited Board resources
<i>RR--Transit</i>	2/19/2011	San Francisco Municipal Railway	Automobile struck train	Limited Board resources
<i>RR--Transit</i>	2/20/2011	MTA New York City Transit	Automobile struck train	Limited Board resources
<i>RR--Transit</i>	2/20/2011	Metro Transit	Pedestrian struck by train	Limited Board resources

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<i>Mode</i>	<i>ACCIDENT DATE</i>	<i>ACCIDENT LOCATION</i>	<i>ACCIDENT CIRCUMSTANCES</i>	<i>REASON NOT INVESTIGATED</i>
<i>RR--Transit</i>	2/22/2011	Tri-County Metropolitan Transportation District of	Train struck pedestrian wearing headphones	Limited Board resources
<i>RR--Transit</i>	2/22/2011	Los Angeles County Metropolitan	Train struck pedestrian	Limited Board resources
<i>RR--Transit</i>	2/23/2011	The Greater Cleveland Regional Transit	Smoke from electrical wiring	Limited Board resources
<i>RR--Transit</i>	2/24/2011	MTA New York City Transit	Train struck pedestrian	Limited Board resources
<i>RR--Transit</i>	2/25/2011	Chicago Transit Authority	Train struck automobile	Limited Board resources
<i>RR--Transit</i>	2/25/2011	Massachusetts Bay Transportation Authority	Train derailment	Limited Board resources
<i>RR--Transit</i>	2/25/2011	Washington Metropolitan Area Transit Authority	Train struck Bus	Limited Board resources
<i>RR--Transit</i>	2/25/2011	San Francisco Municipal Railway	Train struck intoxicated pedestrian who fell into	Limited Board resources
<i>RR--Transit</i>	2/26/2011	Santa Clara Valley Transportation Authority	Train struck pedestrian	Limited Board resources
<i>RR--Transit</i>	2/27/2011	MTA New York City Transit	Train struck intoxicated pedestrian who fell into	Limited Board resources
<i>RR--Transit</i>	2.27/2011	Southeastern Pennsylvania	Train struck passenger	Limited Board resources
<i>RR--Transit</i>	2/28/2011	MTA New York City Transit	Train struck intoxicated pedestrian who fell into	Limited Board resources
<i>RR--Transit</i>	3/2/2011	Metro Transit	Train derailment	Limited Board resources
<i>RR--Transit</i>	3/3/2011	San Francisco Municipal Railway	Train struck automobile	Limited Board resources
<i>RR--Transit</i>	3/4/2011	Chicago Transit Authority	Station evacuation due to smoke	Limited Board resources
<i>RR--Transit</i>	3/4/2011	San Diego Metropolitan Transit System	Train struck automobile	Limited Board resources
<i>RR--Transit</i>	3/6/2011	MTA New York City Transit	Customer struck by train	Limited Board resources
<i>RR--Transit</i>	3/7/2011	MTA New York City Transit	Train struck pedestrian	Limited Board resources
<i>RR--Transit</i>	3/7/2011	King County Department of Transportation - Metro	Train derailment	Limited Board resources
<i>RR--Transit</i>	3/8/2011	Sacramento Regional Transit District	Train struck pedestrian	Limited Board resources
<i>RR--Transit</i>	3/10/2011	The Greater Cleveland Regional Transit	Train struck trespasser	Limited Board resources
<i>RR--Transit</i>	3/15/2011	Massachusetts Bay Transportation Authority	Trolley collided with auto	Limited Board resources
<i>RR--Transit</i>	3/15/2011	Massachusetts Bay Transportation Authority	Train derailment	Limited Board resources
<i>RR--Transit</i>	3/15/2011	Dallas Area Rapid Transit	Train collided with auto	Limited Board resources
<i>RR--Transit</i>	3/16/2011	Southeastern Pennsylvania	Train collided with auto	Limited Board resources
<i>RR--Transit</i>	3/17/2011	Chicago Transit Authority	Train derailment	Limited Board resources
<i>RR--Transit</i>	3/18/2011	Massachusetts Bay Transportation Authority	Rail fire-smoke and flames under train	Limited Board resources
<i>RR--Transit</i>	3/18/2011	Chicago Transit Authority	Train struck passenger	Limited Board resources
<i>RR--Transit</i>	3/19/2011	MTA New York City Transit	Train struck passenger	Limited Board resources
<i>RR--Transit</i>	3/19/2011	MTA New York City Transit	Train struck motor vehicle	Limited Board resources
<i>RR--Transit</i>	3/21/2011	San Francisco Municipal Railway	Train struck pedestrian	Limited Board resources

Appendix B: Accidents Required to be Investigated Under Section 1131 But not Investigated				
<i>Mode</i>	<i>ACCIDENT DATE</i>	<i>ACCIDENT LOCATION</i>	<i>ACCIDENT CIRCUMSTANCES</i>	<i>REASON NOT INVESTIGATED</i>
<i>RR--Transit</i>	3/25/2011	Metropolitan Transit Authority of Harris	Train struck pedestrian	Limited Board resources
<i>RR--Transit</i>	3/25/2011	San Diego Metropolitan Transit System	Train struck pedestrian	Limited Board resources
<i>RR--Transit</i>	3/26/2011	MTA New York City Transit	222 passengers evacuated due to smoke	Limited Board resources
<i>RR--Transit</i>	3/28/2011	Massachusetts Bay Transportation Authority	Train struck trespasser	Limited Board resources
<i>RR--Transit</i>	3/30/2011	Sacramento Regional Transit District	Train struck pedestrian wearing headphones	Limited Board resources
<i>RR--Transit</i>	3/31/2011	San Diego Metropolitan Transit System	Rail fire-smoke and flames	Limited Board resources
<i>RR--Transit</i>	4/1/2011	MTA New York City Transit	Person struck by train	Limited Board resources
<i>RR--Transit</i>	4/1/2011	Los Angeles County Metropolitan	Train struck person leaning over platform	Limited Board resources
<i>RR--Transit</i>	4/1/2011	Southeastern Pennsylvania	Train struck train-rear end collision	Limited Board resources
<i>RR--Transit</i>	4/1/2011	Valley Metro Rail, Inc.	Train collided with auto	Limited Board resources
<i>RR--Transit</i>	4/2/2011	Massachusetts Bay Transportation Authority	Train struck passenger who backed up into train.	Limited Board resources
<i>RR--Transit</i>	4/2/2011	Massachusetts Bay Transportation Authority	Train struck pedestrian	Limited Board resources
<i>RR--Transit</i>	4/2/2011	MTA New York City Transit	Train struck trespasser	Limited Board resources
<i>RR--Transit</i>	4/3/2011	New Orleans Regional Transit Authority	Street car struck tour bus	Limited Board resources
<i>RR--Transit</i>	4/5/2011	San Francisco Municipal Railway	Train struck automobile which ran stop light.	Limited Board resources
<i>RR--Transit</i>	4/8/2011	Maryland Transit Administration	Train struck automobile	Limited Board resources
<i>RR--Transit</i>	4/8/2011	Southeastern Pennsylvania	Train struck automobile driven by drunk driver	Limited Board resources
<i>RR--Transit</i>	4/10/2011	Maryland Transit Administration	Train struck passenger who leaped in front of train	Limited Board resources
<i>RR--Transit</i>	4/10/2011	MTA New York City Transit	Train struck person who fell onto tracks	Limited Board resources
<i>RR--Transit</i>	4/12/2011	Metropolitan Transit Authority of Harris	Train collided with auto	Limited Board resources
<i>RR--Transit</i>	4/12/2011	San Francisco Bay Area Rapid Transit District	Train struck trespasser	Limited Board resources
<i>RR--Transit</i>	4/13/2011	MTA New York City Transit	Train struck trespasser	Limited Board resources
<i>RR--Transit</i>	4/13/2011	Massachusetts Bay Transportation Authority	Train derailment	Limited Board resources
<i>RR--Transit</i>	4/15/2011	New Jersey Transit Corporation	Train struck trespasser	Limited Board resources
<i>RR--Transit</i>	4/15/2011	Memphis Area Transit Authority	Trolley struck pedestrian under the influence	Limited Board resources
<i>RR--Transit</i>	4/16/2011	Port Authority Transit Corporation	Passengers evacuated-heavy smoke & flames	Limited Board resources
<i>RR--Transit</i>	4/16/2011	Utah Transit Authority	Train struck intoxicated passenger	Limited Board resources
<i>RR--Transit</i>	4/17/2011	MTA New York City Transit	Train struck trespasser	Limited Board resources
<i>RR--Transit</i>	4/18/2011	MTA New York City Transit	Train struck trespasser	Limited Board resources
<i>RR--Transit</i>	4/19/2011	Chicago Transit Authority	Passenger evacuation. Train took diverged path	Limited Board resources

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<i>Mode</i>	<i>ACCIDENT DATE</i>	<i>ACCIDENT LOCATION</i>	<i>ACCIDENT CIRCUMSTANCES</i>	<i>REASON NOT INVESTIGATED</i>
<i>RR--Transit</i>	4/20/2011	Washington Metropolitan Area Transit Authority	Evacuation due to sparking insulator	Limited Board resources
<i>RR--Transit</i>	4/20/2011	Tri-County Metropolitan Transportation District of	Rail collision	Limited Board resources
<i>RR--Transit</i>	4/21/2011	Southeastern Pennsylvania	Rear end collision	Limited Board resources
<i>RR--Transit</i>	4/22/2011	Denver Regional Transportation District	Rail collision	Limited Board resources
<i>RR--Transit</i>	4/22/2011	Chicago Transit Authority	Train struck trespasser	Limited Board resources
<i>RR--Transit</i>	4/23/2011	Miami-Dade Transit	Evacuation due to fire alarm	Limited Board resources
<i>RR--Transit</i>	4/28/2011	MTA New York City Transit	Train struck automobile	Limited Board resources
<i>RR--Transit</i>	4/29/2011	Massachusetts Bay Transportation Authority	Train derailment	Limited Board resources
<i>RR--Transit</i>	5/3/2011	Dallas Area Rapid Transit	Train collided with auto	Limited Board resources
<i>RR--Transit</i>	5/4/2011	San Diego Metropolitan Transit System	Train struck trespasser	Limited Board resources
<i>RR--Transit</i>	5/4/2011	Southeastern Pennsylvania	Train collided with auto	Limited Board resources
<i>RR--Transit</i>	5/7/2011	Memphis Area Transit Authority	Trolley struck Utility Truck	Limited Board resources
<i>RR--Transit</i>	5/9/2011	Santa Clara Valley Transportation Authority	Train struck vehicle	Limited Board resources
<i>RR--Transit</i>	5/11/2011	New Orleans Regional Transit Authority	Pedestrian struck by streetcar	Limited Board resources
<i>RR--Transit</i>	5/11/2011	MTA New York City Transit	Train struck trespasser	Limited Board resources
<i>RR--Transit</i>	5/12/2011	Metropolitan Transit Authority of Harris	Train struck vehicle	Limited Board resources
<i>RR--Transit</i>	5/15/2011	Southeastern Pennsylvania	Auto struck train	Limited Board resources
<i>RR--Transit</i>	5/16/2011	MTA New York City Transit	Train struck trespasser	Limited Board resources
<i>RR--Transit</i>	5/16/2011	Tri-County Metropolitan Transportation District of	Train struck pedestrian	Limited Board resources
<i>RR--Transit</i>	5/17/2011	Tri-County Metropolitan Transportation District of	Train struck bus	Limited Board resources
<i>RR--Transit</i>	5/17/2011	New Jersey Transit Corporation	Train struck vehicle	Limited Board resources
<i>RR--Transit</i>	5/17/2011	MTA New York City Transit	Train derailment	Limited Board resources
<i>RR--Transit</i>	5/23/2011	Maryland Transit Administration	Train derailment	Limited Board resources
<i>RR--Transit</i>	5/26/2011	Utah Transit Authority	Train derailment	Limited Board resources
<i>RR--Transit</i>	5/27/2011	Los Angeles County Metropolitan	Train struck pedestrian	Limited Board resources
<i>RR--Transit</i>	5/27/2011	Massachusetts Bay Transportation Authority	Train derailment	Limited Board resources
<i>RR--Transit</i>	6/1/2011	Memphis Area Transit Authority	Train collision	Limited Board resources
<i>RR--Transit</i>	6/1/2011	MTA New York City Transit	Train struck trespasser	Limited Board resources
<i>RR--Transit</i>	6/3/2011	Sacramento Regional Transit District	Train struck pedestrian	Limited Board resources
<i>RR--Transit</i>	6/3/2011	Maryland Transit Administration	Train struck vehicle	Limited Board resources

Appendix B: Accidents Required to be Investigated Under Section 1131 But not Investigated				
<i>Mode</i>	<i>ACCIDENT DATE</i>	<i>ACCIDENT LOCATION</i>	<i>ACCIDENT CIRCUMSTANCES</i>	<i>REASON NOT INVESTIGATED</i>
<i>RR--Transit</i>	6/4/2011	MTA New York City Transit	Train struck pedestrian	Limited Board resources
<i>RR--Transit</i>	6/6/2011	Massachusetts Bay Transportation Authority	Train struck trespasser	Limited Board resources
<i>RR--Transit</i>	6/7/2011	Tri-County Metropolitan Transportation District of	Train struck vehicle	Limited Board resources
<i>RR--Transit</i>	6/8/2011	Utah Transit Authority	Train struck pedestrian looking at cell phone	Limited Board resources
<i>RR--Transit</i>	6/10/2011	MTA New York City Transit	Train struck trespasser	Limited Board resources
<i>RR--Transit</i>	6/11/2011	San Francisco Municipal Railway	Cable Car struck pedestrian	Limited Board resources
<i>RR--Transit</i>	6/12/2011	San Francisco Municipal Railway	Train struck disoriented pedestrian	Limited Board resources
<i>RR--Transit</i>	6/16/2011	Southeastern Pennsylvania	Train struck vehicle	Limited Board resources
<i>RR--Transit</i>	6/19/2011	Denver Regional Transportation District	Train struck bicyclist	Limited Board resources
<i>RR--Transit</i>	6/19/2011	Maryland Transit Administration	Train derailment	Limited Board resources
<i>RR--Transit</i>	6/23/2011	Metropolitan Transit Authority of Harris	Train struck vehicle	Limited Board resources
<i>RR--Transit</i>	6/24/2011	Miami-Dade Transit	Passenger evacuation-electrical short	Limited Board resources
<i>RR--Transit</i>	6/25/2011	New Orleans Regional Transit Authority	Street car struck taxi cab	Limited Board resources
<i>RR--Transit</i>	6/28/2011	Southeastern Pennsylvania	Train struck vehicle	Limited Board resources
<i>RR--Transit</i>	6/29/2011	North County Transit District	Train struck trespasser	Limited Board resources
<i>RR--Transit</i>	6/30/2011	Washington Metropolitan Area Transit Authority	Train derailment	Limited Board resources
<i>RR--Transit</i>	6/30/2011	Massachusetts Bay Transportation Authority	Train struck employee	Limited Board resources
<i>RR--Transit</i>	7/3/2011	San Diego Metropolitan Transit System	Train struck trespasser	Limited Board resources
<i>RR--Transit</i>	7/4/2011	San Diego Metropolitan Transit System	Train struck intoxicated passenger	Limited Board resources
<i>RR--Transit</i>	7/5/2011	MTA New York City Transit	Train struck passenger	Limited Board resources
<i>RR--Transit</i>	7/6/2011	Chicago Transit Authority	Train struck passenger	Limited Board resources
<i>RR--Transit</i>	7/7/2011	MTA New York City Transit	Train struck trespasser	Limited Board resources
<i>RR--Transit</i>	7/8/2011	Utah Transit Authority	Train struck bicyclist	Limited Board resources
<i>RR--Transit</i>	7/9/2011	Metropolitan Transit Authority of Harris	Train struck vehicle	Limited Board resources
<i>RR--Transit</i>	7/11/2011	San Francisco Municipal Railway	Train struck historic street car	Limited Board resources
<i>RR--Transit</i>	7/12/2011	Metropolitan Transit Authority of Harris	Train struck pedestrian	Limited Board resources
<i>RR--Transit</i>	7/13/2011	New Orleans Regional Transit Authority	Street car struck vehicle	Limited Board resources
<i>RR--Transit</i>	7/13/2011	San Diego Metropolitan Transit System	Train struck bicyclist	Limited Board resources
<i>RR--Transit</i>	7/14/2011	Memphis Area Transit Authority	Truck struck Trolley	Limited Board resources
<i>RR--Transit</i>	7/14/2011	Santa Clara Valley Transportation Authority	Train struck pedestrian	Limited Board resources

Appendix B: Accidents Required to be Investigated Under Section 1131 But not Investigated				
<i>Mode</i>	<i>ACCIDENT DATE</i>	<i>ACCIDENT LOCATION</i>	<i>ACCIDENT CIRCUMSTANCES</i>	<i>REASON NOT INVESTIGATED</i>
<i>RR--Transit</i>	7/15/2011	Utah Transit Authority	Rail fire	Limited Board resources
<i>RR--Transit</i>	7/16/2011	Massachusetts Bay Transportation Authority	Train derailment	Limited Board resources
<i>RR--Transit</i>	7/19/2011	Chicago Transit Authority	Train struck vehicle	Limited Board resources
<i>RR--Transit</i>	7/21/2011	Los Angeles County Metropolitan	Train struck trespasser	Limited Board resources
<i>RR--Transit</i>	7/21/2011	Dallas Area Rapid Transit	Fire alarm in tunnel station	Limited Board resources
<i>RR--Transit</i>	7/22/2011	MTA New York City Transit	Train struck trespasser	Limited Board resources
<i>RR--Transit</i>	7/22/2011	Valley Metro Rail, Inc.	Train struck vehicle	Limited Board resources
<i>RR--Transit</i>	7/28/2011	Tri-County Metropolitan Transportation District of	Train struck passenger	Limited Board resources
<i>RR--Transit</i>	7/29/2011	MTA New York City Transit	Train struck intoxicated trespasser	Limited Board resources
<i>RR--Transit</i>	7/29/2011	Metropolitan Transit Authority of Harris	Train struck vehicle	Limited Board resources
<i>RR--Transit</i>	7/29/2011	MTA New York City Transit	Train struck trespasser	Limited Board resources
<i>RR--Transit</i>	8/1/2011	Washington Metropolitan Area Transit Authority	Train struck passenger suffering seizure and	Limited Board resources
<i>RR--Transit</i>	8/1/2011	Maryland Transit Administration	Train struck by car	Limited Board resources
<i>RR--Transit</i>	8/2/2011	Chicago Transit Authority	Train derailment	Limited Board resources
<i>RR--Transit</i>	8/3/2011	Southeastern Pennsylvania	Train struck by truck	Limited Board resources
<i>RR--Transit</i>	8/3/2011	MTA New York City Transit	Train derailment	Limited Board resources
<i>RR--Transit</i>	8/3/2011	Metro Transit	Train struck vehicle	Limited Board resources
<i>RR--Transit</i>	8/5/2011	Metro Transit	Evacuation-power failure	Limited Board resources
<i>RR--Transit</i>	8/5/2011	Los Angeles County Metropolitan	Train struck vehicle	Limited Board resources
<i>RR--Transit</i>	8/6/2011	Dallas Area Rapid Transit	Train struck vehicle	Limited Board resources
<i>RR--Transit</i>	8/7/2011	MTA New York City Transit	Train struck trespasser	Limited Board resources
<i>RR--Transit</i>	8/8/2011	Maryland Transit Administration	Train struck vehicle	Limited Board resources
<i>RR--Transit</i>	8/8/2011	San Francisco Municipal Railway	Street car struck pedestrian	Limited Board resources
<i>RR--Transit</i>	8/8/2011	Maryland Transit Administration	Train struck passenger wearing headphones	Limited Board resources
<i>RR--Transit</i>	8/9/2011	MTA New York City Transit	Train struck passenger	Limited Board resources
<i>RR--Transit</i>	8/9/2011	Los Angeles County Metropolitan	Train struck vehicle	Limited Board resources
<i>RR--Transit</i>	8/11/2011	New Orleans Regional Transit Authority	Street car struck vehicle	Limited Board resources
<i>RR--Transit</i>	8/12/2011	San Diego Metropolitan Transit System	Train struck passenger cab	Limited Board resources
<i>RR--Transit</i>	8/15/2011	MTA New York City Transit	Train struck trespasser	Limited Board resources
<i>RR--Transit</i>	8/15/2011	Maryland Transit Administration	Train struck vehicle	Limited Board resources
<i>RR--Transit</i>	8/16/2011	Massachusetts Bay Transportation Authority	Train derailment	Limited Board resources

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<i>Mode</i>	<i>ACCIDENT DATE</i>	<i>ACCIDENT LOCATION</i>	<i>ACCIDENT CIRCUMSTANCES</i>	<i>REASON NOT INVESTIGATED</i>
<i>RR--Transit</i>	8/16/2011	Metropolitan Transit Authority of Harris	Train struck vehicle	Limited Board resources
<i>RR--Transit</i>	8/17/2011	New Orleans Regional Transit Authority	Train struck vehicle	Limited Board resources
<i>RR--Transit</i>	8/18/2011	MTA New York City Transit	Train conductor ill	Limited Board resources
<i>RR--Transit</i>	8/19/2011	Utah Transit Authority	Train struck pedestrian	Limited Board resources
<i>RR--Transit</i>	8/22/2011	Chicago Transit Authority	Train struck vehicle	Limited Board resources
<i>RR--Transit</i>	8/25/2011	San Francisco Municipal Railway	Train derailment	Limited Board resources
<i>RR--Transit</i>	8/26/2011	San Diego Metropolitan Transit System	Train struck vehicle	Limited Board resources
<i>RR--Transit</i>	8/28/2011	Utah Transit Authority	Train collision	Limited Board resources
<i>RR--Transit</i>	8/29/2011	Southeastern Pennsylvania	Train struck vehicle	Limited Board resources
<i>RR--Transit</i>	8/29/2011	Dallas Area Rapid Transit	Evacuation-natural gas leak	Limited Board resources
<i>RR--Transit</i>	8/29/2011	Southeastern Pennsylvania	Rail collision	Limited Board resources
<i>RR--Transit</i>	9/2/2011	Port Authority of Allegheny County	Train struck vehicle	Limited Board resources
<i>RR--Transit</i>	9/2/2011	MTA New York City Transit	Train struck intoxicated passenger	Limited Board resources
<i>RR--Transit</i>	9/3/2011	San Francisco Municipal Railway	Train struck vehicle	Limited Board resources
<i>RR--Transit</i>	9/4/2011	Metropolitan Transit Authority of Harris	Train struck pedestrian	Limited Board resources
<i>RR--Transit</i>	9/9/2011	New Orleans Regional Transit Authority	Street car struck bicyclist	Limited Board resources
<i>RR--Transit</i>	9/11/2011	Utah Transit Authority	Train struck motorcyclist	Limited Board resources
<i>RR--Transit</i>	9/11/2011	Miami-Dade Transit	Evacuation due to heavy smoke	Limited Board resources
<i>RR--Transit</i>	9/13/2011	San Francisco Municipal Railway	Train derailment	Limited Board resources
<i>RR--Transit</i>	9/14/2011	The Greater Cleveland Regional Transit	Evacuation-suspicious box with pipe nearby	Limited Board resources
<i>RR--Transit</i>	9/16/2011	MTA New York City Transit	Train stuck trespasser	Limited Board resources
<i>RR--Transit</i>	9/17/2011	Chicago Transit Authority	Train derailment	Limited Board resources
<i>RR--Transit</i>	9/17/2011	New Jersey Transit Corporation	Train struck vehicle	Limited Board resources
<i>RR--Transit</i>	9/19/2011	Metro Transit	Train struck vehicle	Limited Board resources
<i>RR--Transit</i>	9/20/2011	Denver Regional Transportation District	Train struck pedestrian	Limited Board resources
<i>RR--Transit</i>	9/22/2011	Charlotte Area Transit System	Train struck pedestrian	Limited Board resources
<i>RR--Transit</i>	9/23/2011	MTA New York City Transit	Train struck passenger	Limited Board resources
<i>RR--Transit</i>	9/23/2011	The Greater Cleveland Regional Transit	Evacuation-smoke	Limited Board resources
<i>RR--Transit</i>	9/24/2011	Los Angeles County Metropolitan	Train struck pedestrian	Limited Board resources
<i>RR--Transit</i>	9/25/2011	Dallas Area Rapid Transit	Vehicle ran onto tracks	Limited Board resources
<i>RR--Transit</i>	9/28/2011	Chicago Transit Authority	Train struck passenger	Limited Board resources

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<i>Mode</i>	<i>ACCIDENT DATE</i>	<i>ACCIDENT LOCATION</i>	<i>ACCIDENT CIRCUMSTANCES</i>	<i>REASON NOT INVESTIGATED</i>
<i>RR--Transit</i>	9/28/2011	San Diego Metropolitan Transit System	Train struck pedestrian	Limited Board resources
<i>RR--Transit</i>	9/29/2011	Chicago Transit Authority	Train struck vehicle	Limited Board resources
<i>RR--Transit</i>	10/2/2011	San Francisco Bay Area Rapid Transit District	Train struck patron	Limited Board resources
<i>RR--Transit</i>	10/3/2011	MTA New York City Transit	Train struck passenger	Limited Board resources
<i>RR--Transit</i>	10/4/2011	Metropolitan Transit Authority of Harris	Train struck dump truck	Limited Board resources
<i>RR--Transit</i>	10/4/2011	The Greater Cleveland Regional Transit	Evacuation due to fire/smoke	Limited Board resources
<i>RR--Transit</i>	10/5/2011	San Francisco Municipal Railway	Train derailment	Limited Board resources
<i>RR--Transit</i>	10/6/2011	San Francisco Municipal Railway	Rail collision	Limited Board resources
<i>RR--Transit</i>	10/9/2011	Maryland Transit Administration	Train struck truck	Limited Board resources
<i>RR--Transit</i>	10/10/2011	MTA New York City Transit	Train struck passenger	Limited Board resources
<i>RR--Transit</i>	10/13/2011	Valley Metro Rail, Inc.	Train struck vehicle	Limited Board resources
<i>RR--Transit</i>	10/14/2011	Chicago Transit Authority	Train struck vehicle	Limited Board resources
<i>RR--Transit</i>	10/14/2011	New Orleans Regional Transit Authority	Street car struck vehicle	Limited Board resources
<i>RR--Transit</i>	10/18/2011	MTA New York City Transit	Platform Conductor overcome with smoke	Limited Board resources
<i>RR--Transit</i>	10/24/2011	Tri-County Metropolitan Transportation District of	Truck struck train	Limited Board resources
<i>RR--Transit</i>	10/26/2011	San Diego Metropolitan Transit System	Train struck passenger	Limited Board resources
<i>RR--Transit</i>	10/26/2011	Sacramento Regional Transit District	Train struck vehicle	Limited Board resources
<i>RR--Transit</i>	10/27/2011	MTA New York City Transit	Train struck passenger	Limited Board resources
<i>RR--Transit</i>	10/28/2011	Los Angeles County Metropolitan	Train struck vehicle	Limited Board resources
<i>RR--Transit</i>	10/28/2011	New Orleans Regional Transit Authority	Street car struck vehicle	Limited Board resources
<i>RR--Transit</i>	10/30/2011	Santa Clara Valley Transportation Authority	Train struck pedestrian	Limited Board resources
<i>RR--Transit</i>	10/31/2011	Utah Transit Authority	Train struck tow truck	Limited Board resources
<i>RR--Transit</i>	10/31/2011	Chicago Transit Authority	Train derailment	Limited Board resources
<i>RR--Transit</i>	11/1/2011	New Orleans Regional Transit Authority	Train struck vehicle	Limited Board resources
<i>RR--Transit</i>	11/3/2011	San Francisco Municipal Railway	Train struck pedestrian	Limited Board resources
<i>RR--Transit</i>	11/4/2011	Southeastern Pennsylvania	Train struck auto	Limited Board resources
<i>RR--Transit</i>	11/6/2011	Valley Metro Rail, Inc.	Train struck vehicle	Limited Board resources
<i>RR--Transit</i>	11/7/2011	Utah Transit Authority	Train struck pedestrian	Limited Board resources
<i>RR--Transit</i>	11/7/2011	San Diego Metropolitan Transit System	Train struck passenger	Limited Board resources
<i>RR--Transit</i>	11/7/2011	Valley Metro Rail, Inc.	Train struck auto	Limited Board resources
<i>RR--Transit</i>	11/7/2011	Southeastern Pennsylvania	Train struck auto	Limited Board resources

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<i>Mode</i>	<i>ACCIDENT DATE</i>	<i>ACCIDENT LOCATION</i>	<i>ACCIDENT CIRCUMSTANCES</i>	<i>REASON NOT INVESTIGATED</i>
RR--Transit	11/10/2011	Southeastern Pennsylvania	Train struck auto	Limited Board resources
RR--Transit	11/11/2011	Los Angeles County Metropolitan	Train struck trespasser	Limited Board resources
RR--Transit	11/11/2011	Chicago Transit Authority	Evacuation-fire	Limited Board resources
RR--Transit	11/14/2011	MTA New York City Transit	Train struck passenger	Limited Board resources
RR--Transit	11/15/2011	San Francisco Bay Area Rapid Transit District	Train derailment	Limited Board resources
RR--Transit	11/15/2011	Los Angeles County Metropolitan	Train struck pedestrians	Limited Board resources
RR--Transit	11/19/2011	MTA New York City Transit	Train struck trespasser	Limited Board resources
RR--Transit	11/20/2011	Metro Transit	Train struck vehicle	Limited Board resources
RR--Transit	11/20/2011	San Francisco Bay Area Rapid Transit District	Train struck trespasser	Limited Board resources
RR--Transit	11/22/2011	Utah Transit Authority	Train struck pedestrian	Limited Board resources
RR--Transit	11/25/2011	Los Angeles County Metropolitan	Train struck automobile	Limited Board resources
RR--Transit	11/29/2011	Los Angeles County Metropolitan	Train struck automobile	Limited Board resources
RR--Transit	12/1/2011	MTA New York City Transit	Train struck trespasser	Limited Board resources
RR--Transit	12/1/2011	MTA New York City Transit	Train struck trespasser	Limited Board resources
RR--Transit	12/3/2011	MTA New York City Transit	Train struck intoxicated passenger	Limited Board resources
RR--Transit	12/3/2011	MTA New York City Transit	Train struck passenger	Limited Board resources
RR--Transit	12/6/2011	Maryland Transit Administration	Train struck trespasser	Limited Board resources
RR--Transit	12/7/2011	San Diego Metropolitan Transit System	Train struck pedestrian	Limited Board resources
RR--Transit	12/12/2011	Maryland Transit Administration	Train struck pedestrian	Limited Board resources
RR--Transit	12/12/2011	MTA New York City Transit	Train struck trespasser	Limited Board resources
RR--Transit	12/19/2011	San Diego Metropolitan Transit System	Train struck pedestrian	Limited Board resources
RR--Transit	12/20/2011	Washington Metropolitan Area Transit Authority	Evacuation in tunnel-brake component fell off	Limited Board resources
RR--Transit	12/21/2011	San Diego Metropolitan Transit System	Train struck pedestrian	Limited Board resources
RR--Transit	12/25/2011	MTA New York City Transit	Train struck trespasser	Limited Board resources
RR--Transit	12/26/2011	San Diego Metropolitan Transit System	Train struck pedestrian	Limited Board resources
RR--Transit	12/27/2011	MTA New York City Transit	Train struck trespasser	Limited Board resources
RR--Transit	12/31/2011	MTA New York City Transit	Train struck intoxicated passenger	Limited Board resources
Railroad Freight Accidents over \$1 million				
RR--Freight	1/4/2011	DOUGLASVILLE, GA	NS derailment, \$1.2M	Limited Board resources
RR--Freight	2/5/2011	MORRISON, MO	UP 50 car derailment, \$2.9M	Limited Board resources
RR--Freight	2/6/2011	ARCADIA, OH	NS 33 car derailment, \$2.0M	Limited Board resources

Appendix B: Accidents Required to be Investigated Under Section 1131 But not Investigated				
<i>Mode</i>	<i>ACCIDENT DATE</i>	<i>ACCIDENT LOCATION</i>	<i>ACCIDENT CIRCUMSTANCES</i>	<i>REASON NOT INVESTIGATED</i>
RR--Freight	2/21/2011	WILLISTON, ND	BNSF derailment, \$2.0M	Limited Board resources
RR--Freight	3/10/2011	SENECA, NE	BNSF derailment, \$4.1M	Limited Board resources
RR--Freight	3/13/2011	LE GRAND, IA	UP derailment, \$1.3M	Limited Board resources
RR--Freight	3/18/2011	BISMARCK, ND	BNSF derailment, \$1.5M	Limited Board resources
RR--Freight	3/20/2011	TROY, MT	BNSF derailment, \$1.3M	Limited Board resources
RR--Freight	4/1/2011	MELVERN, KS	BNSF derailment, \$1.1M	Limited Board resources
RR--Freight	4/13/2011	ARTESIA, NM	SW derailment, \$2.4M	Limited Board resources
RR--Freight	5/5/2011	LITTLE ROCK, AR	UP 11 car derailment, \$1.6M	Limited Board resources
RR--Freight	5/6/2011	NORMANDY, IL	UP 32 car derailment, \$2.3M. Broken rail.	Limited Board resources
RR--Freight	5/8/2011	SHELBIANA, KY	NS derailment, \$2.5M	Limited Board resources
RR--Freight	5/23/2011	MORAN, KS	UP derailment, \$1.8M	Limited Board resources
RR--Freight	6/4/2011	OSAWATOMIE, KS	UP derailment, \$1.2M	Limited Board resources
RR--Freight	6/28/2011	AKRON, AL	NS derailment, \$1.3M	Limited Board resources
RR--Freight	7/2/2011	MILFORD, NE	BNSF derailment, \$1.9M	Limited Board resources
RR--Freight	7/3/2011	HUGO, OK	KRR derailment, \$1.1M	Limited Board resources
RR--Freight	7/5/2011	ROBARDS, KY	CSX derailment, \$1.0M	Limited Board resources
RR--Freight	7/5/2011	ASHDOWN, AR	KCS 34 car derailment, \$2.0M	Limited Board resources
RR--Freight	7/6/2011	MINEOLA, TX	UP derailment, \$1.6M	Limited Board resources
RR--Freight	7/10/2011	BRAINERD, MN	BNSF derailment, \$1.2M	Limited Board resources
RR--Freight	7/10/2011	BLOOMINGTON, IN	CSX 36 car derailment, \$1.9M	Limited Board resources
RR--Freight	7/10/2011	LEMOYNE, NE	UP 37 car derailment, \$2.7M	Limited Board resources
RR--Freight	7/16/2011	FRIDLEY, MN	BNSF derailment, \$2.8M. Washout at bridge.	Limited Board resources
RR--Freight	7/19/2011	GREAT FALLS, MT	BNSF collision, \$1.5M. Main track switch left open	Limited Board resources
RR--Freight	7/27/2011	GALENA, IL	BNSF derailment, \$2.6M. Washed-out track.	Limited Board resources
RR--Freight	7/27/2011	LITTLE ROCK, CA	UP derailment, \$1.5M.	Limited Board resources
RR--Freight	7/27/2011	NABORTON, LA	UP derailment, \$2.5M. Highway-rail crossing	Limited Board resources
RR--Freight	7/31/2011	DENISON, IA	UP 22 car derailment. \$1.4M. Caused by broken	Limited Board resources
RR--Freight	8/4/2011	MINEOLA, TX	UP derailment, \$1.1M	Limited Board resources
RR--Freight	8/6/2011	KENSAL, ND	CP 33 car & 2 locomotive derailment. \$2.4M.	Limited Board resources
RR--Freight	8/28/2011	HAVRE, MT	BNSF derailment, \$1.4M. Caused by buckled track.	Limited Board resources
RR--Freight	9/3/2011	OBLONG, IL	CSX derailment, \$3.0M	Limited Board resources

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RR--Freight	9/5/2011	EMMETT, KS	UP 57 car derailment, \$3.3M. Caused by broken CSX 15 car & 1	Limited Board resources
RR--Freight	9/15/2011	GUTHRIE, KY	locomotive derailment,	Limited Board resources
RR--Freight	9/17/2011	NEPHI, UT	UP 31 car derailment, \$1.7M.	Limited Board resources
RR--Freight	9/18/2011	CHOUDRANT, LA	KCS 32 car derailment, \$1.3M	Limited Board resources
RR--Freight	10/2/2011	NORMANDY, IL	UP 9 car derailment, \$1.0M, Broken rail.	Limited Board resources
RR--Freight	10/5/2011	CHARLESTON, WV	CSX derailment, \$1.1M. Bearing failure.	Limited Board resources
RR--Freight	11/3/2011	BARTLETT, IL	CN 22 car derailment, \$2.2M. Caused by broken	Limited Board resources
RR--Freight	11/14/2011	TOPEKA, KS	UP 22 car derailment. \$2.0M. Caused by broken	Limited Board resources
RR--Freight	11/19/2011	OSWEGO, MT	BNSF 11 car & 1 locomotive. Caused by	Limited Board resources
RR--Freight	12/6/2011	EAST DUBUQUE, IL	BNSF 22 car derailment. \$2.3M Caused by broken	Limited Board resources
RR--Freight	12/11/2011	KEOKUK, IA	BNSF derailment, \$1.5M. Caused by broken rail.	Limited Board resources
Railroad Employees Fatalities				
RR-Employees	2/8/2011	KANKAKEE, IL	Employee Struck by object	Limited Board resources
RR-Employees	2/9/2011	SEWARD, KS	Collision/impact - auto, truck, bus, van, etc.	Limited Board resources
RR-Employees	3/9/2011	COWLITZ, WA	Highway-rail grade crossingcollision/impact	Limited Board resources
RR-Employees	4/29/2011	WARE, GA	Highway-rail grade crossing collision/impact	Limited Board resources
RR-Employees	6/30/2011	MONONA, IA	Collision/impact - auto, truck, bus, van, etc.	Limited Board resources
RR-Employees	8/4/2011	TULSA, OK	Caught Between Equipment	Limited Board resources
RR-Employees	8/14/2011	SUFFOLK, NY	Electrical shock due to contact with 3rd rail,	Limited Board resources
RR-Employees	8/19/2011	VALLEY, MT	Collision/impact - auto, truck, bus, van, etc.	Limited Board resources
RR-Employees	8/19/2011	VALLEY, MT	Collision/impact - auto, truck, bus, van, etc.	Limited Board resources
RR-Employees	8/28/2011	DICKINSON, KS	Highway-rail grade crossingcollision/impact	Limited Board resources
RR-Employees	9/8/2011	SHELBY, OH	Caught Between Equipment	Limited Board resources
RR-Employees	9/19/2011	HARFORD, MD	Slipped, fell, stumbled, other	Limited Board resources
RR-Employees	12/18/2011	GRIMES, TX	Lost balance in cab or walkways of locomotive	Limited Board resources
Accidents involving Passenger Trains				
RR-Pass.	1/3/2011	GOLETA, CA	Train struck tree that had fallen across the track.	Limited Board resources
RR-Pass.	1/6/2011	MORRISVILLE, PA	Train derailed the first truck and one wheel of	Limited Board resources
RR-Pass.	1/9/2011	ROTTERDAM, NY	Locomotive fire due to fuel leak.	Limited Board resources
RR-Pass.	1/9/2011	NEW HAVEN, CT	Crew failed to control reverse move into yard	Limited Board resources
RR-Pass.	1/9/2011	ELLISVILLE, MS	Train struck a motor vehicle at a highway-rail	Limited Board resources

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RR-Pass.	1/12/2011	DUNKIRK, NY	Train struck truck at highway-rail grade	Limited Board resources
RR-Pass.	1/13/2011	FARMINGDALE, NY	Train struck a motor vehicle at a highway-rail	Limited Board resources
RR-Pass.	1/15/2011	WESTPORT, CT	Train pantograph damage.	Limited Board resources
RR-Pass.	1/18/2011	WALLINGFORD, CT	Train struck truck at highway-rail grade	Limited Board resources
RR-Pass.	1/22/2011	MARCUS HOOK, PA	Train pantograph damage.	Limited Board resources
RR-Pass.	1/22/2011	EAST WENATCHEE, WA	Locomotive fire due to coolant leak.	Limited Board resources
RR-Pass.	1/25/2011	RICHMOND, CA	Train struck truck at highway-rail grade	Limited Board resources
RR-Pass.	1/27/2011	NEW CANAAN, CT	Train struck bumping block at station, derailing	Limited Board resources
RR-Pass.	1/28/2011	SCOTT, LA	Train struck truck at highway-rail grade	Limited Board resources
RR-Pass.	1/29/2011	SPRINGFIELD, MA	Train derailed at low speed.	Limited Board resources
RR-Pass.	1/31/2011	HUNTINGTON, NY	After coupling train, proceeded to east and	Limited Board resources
RR-Pass.	2/1/2011	GREENWICH, CT	Journal bearing failed on car axle, causing wheel to	Limited Board resources
RR-Pass.	2/2/2011	FORT WORTH, TX	Highway user left the highway drove down the	Limited Board resources
RR-Pass.	2/7/2011	NEW YORK -QUEENS, N	Train went past a stop signal at low speed and	Limited Board resources
RR-Pass.	2/14/2011	MILWAUKIE, OR	Train struck a tree that was fouling the main line.	Limited Board resources
RR-Pass.	2/16/2011	WEST PALM BEACH, FL	Train struck a motor vehicle at a highway-rail	Limited Board resources
RR-Pass.	2/19/2011	BURLINGTON, NJ	Train struck a motor vehicle at a highway-rail	Limited Board resources
RR-Pass.	2/19/2011	KIRBY, TX	Train struck by a motor vehicle at a highway-rail	Limited Board resources
RR-Pass.	2/25/2011	PROVIDENCE FORGE, V	Train struck truck at highway-rail grade	Limited Board resources
RR-Pass.	2/27/2011	SPRINGFIELD, MA	Train derailed four wheels of locomotive due to rail	Limited Board resources
RR-Pass.	3/3/2011	PHILADELPHIA, PA	Train pantograph damage.	Limited Board resources
RR-Pass.	3/4/2011	CHASE, MD	Train pantograph damage.	Limited Board resources
RR-Pass.	3/8/2011	WEST PALM BEACH, FL	Highway vehicle operator lost control of vehicle	Limited Board resources
RR-Pass.	3/11/2011	NEWARK, NJ	Train pantograph damage.	Limited Board resources
RR-Pass.	3/21/2011	PORT JEFFERSON, NY	Train struck bumper block at station, causing	Limited Board resources
RR-Pass.	3/21/2001	RED BLUFF, CA	Train struck a motor vehicle at a highway-rail	Limited Board resources
RR-Pass.	3/24/2011	CEDAR PARK, TX	Train struck a motor vehicle at a highway-rail	Limited Board resources
RR-Pass.	3/26/2011	NEW HAVEN, CT	Switch improperly lined for movement, resulting in	Limited Board resources
RR-Pass.	3/26/2011	HACKENSACK, NJ	Train struck a motor vehicle at a highway-rail	Limited Board resources
RR-Pass.	3/29/2011	TRENTON, NJ	Train pantograph damage.	Limited Board resources

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RR-Pass.	3/30/2011	OLD LYME, CT	Train pantograph damage.	Limited Board resources
RR-Pass.	3/30/2011	MADERA, CA	Train struck a motor vehicle at a highway-rail	Limited Board resources
RR-Pass.	4/1/2011	NORWALK, CA	Train 796 struck a vehicle Hi-Centered on the tracks.	Limited Board resources
RR-Pass.	4/2/2011	NENANA, AK	Train fire in baggage car.	Limited Board resources
RR-Pass.	4/2/2011	BOSTON, MA	The roof of locomotive on fire due to a failed	Limited Board resources
RR-Pass.	4/5/2011	CONCORD, NC	Train derailment due to debris from struck tree.	Limited Board resources
RR-Pass.	4/9/2011	SPRING LAKE, NJ	Train struck a motor vehicle at a highway-rail	Limited Board resources
RR-Pass.	4/11/2011	TRENTON, NJ	Train pantograph damage.	Limited Board resources
RR-Pass.	4/20/2011	SLIDELL, LA	Train struck truck at highway-rail grade	Limited Board resources
RR-Pass.	4/26/2011	SECAUCUS, NJ	Train pantograph damage.	Limited Board resources
RR-Pass.	4/27/2011	PHILADELPHIA, PA	Train pantograph damage.	Limited Board resources
RR-Pass.	5/8/2011	NEW YORK NEW YORK	Train derailed 5 cars due to a broken rail.	Limited Board resources
RR-Pass.	5/9/2011	NEW YORK NEW YORK	Train pantograph damage.	Limited Board resources
RR-Pass.	5/11/2011	METUCHEN, NJ	Smoke conditions caused by debris stuck in truck of	Limited Board resources
RR-Pass.	5/13/2011	MT PROSPECT, IL	Train struck truck at highway-rail grade	Limited Board resources
RR-Pass.	5/15/2011	DALLAS, TX	Train derailed car due to broken switch point.	Limited Board resources
RR-Pass.	5/17/2011	DEER PARK, NY	Train struck truck at highway-rail grade	Limited Board resources
RR-Pass.	5/19/2011	KING CITY, CA	Train struck truck at highway-rail grade	Limited Board resources
RR-Pass.	5/21/2011	REESEVILLE, WI	Train struck truck at highway-rail grade	Limited Board resources
RR-Pass.	5/25/2011	NEWPORT, DE	Train pantograph damage.	Limited Board resources
RR-Pass.	5/25/2011	SALINAS, CA	Train struck truck at highway-rail grade	Limited Board resources
RR-Pass.	5/29/2011	PLANADA, CA	Train struck a motor vehicle at a highway-rail	Limited Board resources
RR-Pass.	5/29/2011	MILFORD, CT	Train struck a motor vehicle at a highway-rail	Limited Board resources
RR-Pass.	6/1/2011	STAMFORD, CT	Train pantograph damage.	Limited Board resources
RR-Pass.	6/8/2011	PRINCETON, NJ	Train struck bumper block at station and derailed the	Limited Board resources
RR-Pass.	6/16/2011	JAMAICA, NY	Train struck bumper block at station.	Limited Board resources
RR-Pass.	6/20/2011	CHERAW, SC	Train struck truck at highway-rail grade	Limited Board resources
RR-Pass.	6/20/2011	MORRISVILLE, PA	Locomotive derailed after train ran through switch.	Limited Board resources
RR-Pass.	6/26/2011	ANNISTON, AL	Train struck trees down across track.	Limited Board resources
RR-Pass.	7/1/2011	HARRISON, NY	A 4000 lb insulator failed on catenary, damaging	Limited Board resources

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RR-Pass.	7/11/2011	NORTH BERWICK, ME	Train struck truck at highway-rail grade	Limited Board resources
RR-Pass.	7/11/2011	NEW YORK, NY	Second car of train derailed.	Limited Board resources
RR-Pass.	7/13/2011	TRENTON, NJ	Train pantograph damage.	Limited Board resources
RR-Pass.	7/13/2011	PALMDALE, CA	Train struck by a motor vehicle at a highway-rail	Limited Board resources
RR-Pass.	7/20/2011	LONG ISLAND CITY, NY	Train struck truck at highway-rail grade	Limited Board resources
RR-Pass.	7/22/2011	BRIDGEPORT, CT	Train pantograph damage.	Limited Board resources
RR-Pass.	8/1/2011	EXETER, NE	Train struck farm irrigation unit.	Limited Board resources
RR-Pass.	8/1/2011	FAIRFIELD, CA	Train struck truck at highway-rail grade	Limited Board resources
RR-Pass.	8/9/2011	NEW YORK NEW YORK	Train derailed 2 cars while departing station.	Limited Board resources
RR-Pass.	8/26/2011	BENKELMAN, NE	Train struck a demolition crane which was fouling	Limited Board resources
RR-Pass.	9/13/2011	BALTIMORE, MD	Train struck debris, damaging all 6 cars.	Limited Board resources
RR-Pass.	9/15/2011	ELBURN, IL	Train derailed four axles due to improperly lined	Limited Board resources
RR-Pass.	9/16/2011	CHESTNUT HILL, PA	Train struck bumping post at station.	Limited Board resources
RR-Pass.	9/19/2011	HUGHSON, CA	Train struck truck at highway-rail grade	Limited Board resources
RR-Pass.	9/19/2011	NEW HAVEN, CT	Switch was not fully latched and locked, which	Limited Board resources
RR-Pass.	9/22/2011	NEW YORK NEW YORK	Train pantograph damage.	Limited Board resources
RR-Pass.	9/25/2011	MADERA, CA	Train struck a motor vehicle at a highway-rail	Limited Board resources
RR-Pass.	9/25/2011	HOBOKEN, NJ	Train car derailed while operating over switch	Limited Board resources
RR-Pass.	9/29/2011	CHICAGO, IL	Train sustained damage to the back portion of	Limited Board resources
RR-Pass.	10/4/2011	LONG ISLAND CITY, NY	Train car derailed at low speed on a newly installed	Limited Board resources
RR-Pass.	10/8/2011	HAINES CITY, FL	Train struck truck at highway-rail grade	Limited Board resources
RR-Pass.	10/11/2011	KEARNY, NJ	Incorrect pantograph configuration caused	Limited Board resources
RR-Pass.	10/12/2011	DAVIS, CA	Train struck a vehicle fouling the main track.	Limited Board resources
RR-Pass.	10/12/2011	OAKLAND, CA	Train collided with another train at low speed in the	Limited Board resources
RR-Pass.	10/16/2011	WORCESTER, MA	Train struck a large tree.	Limited Board resources
RR-Pass.	10/19/2011	CURTIS PARK, PA	Train pantograph damage.	Limited Board resources
RR-Pass.	10/29/2011	ELIZABETHTOWN, PA	Train struck a tree that had fallen onto the tracks.	Limited Board resources
RR-Pass.	11/13/2011	TRENTON, NJ	Train 87 stopped due to a PCS Fault.	Limited Board resources
RR-Pass.	11/14/2001	KAYSVILLE, UT	Train struck motor vehicle at highway-rail grade	Limited Board resources
RR-Pass.	12/17/2011	DENVER, CO	Two cars derailed at low speed, due to a broken	Limited Board resources
RR-Pass.	12/18/2011	HUTTO, TX	Train struck truck at highway-rail grade	Limited Board resources

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RR-Pass.	12/19/2011	SHARON, MA	Train struck and pulled down about 800 feet of	Limited Board resources
RR-Pass.	12/27/2011	SOUTH ROYALTON, VT	Train struck by motor vehicle at highway-rail	Limited Board resources
Railroad Tresspasser Fatalities				
RR-Tresspassers	1/1/2011	EDGECOMBE, NC	On highway-rail crossing, collision impact	Limited Board resources
RR-Tresspassers	1/2/2011	SANTA CLARA, CA	On highway-rail crossing, collision impact	Limited Board resources
RR-Tresspassers	1/4/2011	SANTA BARBARA, CA	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	1/4/2011	AUGLAIZE, OH	Between tracks, struck by on-track equipment	Limited Board resources
RR-Tresspassers	1/6/2011	BERKELEY, SC	Beside track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	1/7/2011	CABARRUS, NC	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	1/8/2011	LEAVENWORTH, KS	On highway-rail crossing, collision impact	Limited Board resources
RR-Tresspassers	1/8/2011	DALLAS, AL	On highway-rail crossing, collision impact	Limited Board resources
RR-Tresspassers	1/10/2011	PALM BEACH, FL	Between tracks, highway/rail collision	Limited Board resources
RR-Tresspassers	1/11/2011	OREGON, MO	Between tracks, struck by on-track equipment	Limited Board resources
RR-Tresspassers	1/11/2011	LIMESTONE, TX	Between tracks, struck by on-track equipment	Limited Board resources
RR-Tresspassers	1/12/2011	CHAUTAUQUA, NY	On highway-rail crossing, collision impact	Limited Board resources
RR-Tresspassers	1/13/2011	COOK, IL	On highway-rail crossing, collision impact	Limited Board resources
RR-Tresspassers	1/13/2011	MCKINLEY, NM	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	1/14/2011	SAN MIGUEL, NM	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	1/14/2011	PASSAIC, NJ	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	1/14/2011	KING, WA	Between tracks, struck by on-track equipment	Limited Board resources
RR-Tresspassers	1/15/2011	JEFFERSON, OR	In/operating vehicle, sudden/unexpected	Limited Board resources
RR-Tresspassers	1/15/2011	SNOHOMISH, WA	Beside track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	1/15/2011	NORFOLK, MA	Between tracks, struck by on-track equipment	Limited Board resources
RR-Tresspassers	1/17/2011	COCONINO, AZ	Between tracks, struck by on-track equipment	Limited Board resources
RR-Tresspassers	1/17/2011	VOLUSIA, FL	Other location, Other (describe in narrative)	Limited Board resources
RR-Tresspassers	1/20/2011	PALM BEACH, FL	Between tracks, struck by on-track equipment	Limited Board resources
RR-Tresspassers	1/20/2011	MACON, IL	Beside track, highway-rail collision/impact	Limited Board resources
RR-Tresspassers	1/21/2011	MADISON, IN	On highway-rail crossing, collision impact	Limited Board resources
RR-Tresspassers	1/21/2011	BROWARD, FL	Between tracks, struck by on-track equipment	Limited Board resources
RR-Tresspassers	1/21/2011	RICHLAND, SC	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	1/22/2011	UNION, NJ	On track, struck by on-track equipment	Limited Board resources

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RR-Trespassers	1/22/2011	RACINE, WI	Beside track, ran into object/equipment	Limited Board resources
RR-Trespassers	1/23/2011	MARION, OH	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	1/23/2011	KNOX, IL	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	1/24/2011	BRAZOS, TX	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	1/28/2011	MOBILE, AL	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	1/30/2011	KING, WA	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	2/1/2011	BEXAR, TX	On bridge/trestle, burned	Limited Board resources
RR-Trespassers	2/1/2011	DALLAS, TX	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	2/2/2011	SEDGWICK, KS	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	2/3/2011	BARTOW, GA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	2/6/2011	RIVERSIDE, CA	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	2/7/2011	POLK, IA	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	2/7/2011	PALM BEACH, FL	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	2/8/2011	RIVERSIDE, CA	On highway-rail crossing, struck by on-track	Limited Board resources
RR-Trespassers	2/10/2011	SUFFOLK, NY	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	2/11/2011	NEW CASTLE, DE	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	2/11/2011	ST LOUIS, MO	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	2/11/2011	LOS ANGELES, CA	On bridge/trestle, struck by on-track equipment	Limited Board resources
RR-Trespassers	2/11/2011	MCKINLEY, NM	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	2/13/2011	TULSA, OK	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	2/13/2011	MONTGOMERY, VA	On bridge/trestle, struck by on-track equipment	Limited Board resources
RR-Trespassers	2/13/2011	RICHMOND, VA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	2/14/2011	SHELBY, AL	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	2/15/2011	WEBSTER, IA	On bridge/trestle, slipped, fell, stumbled, other	Limited Board resources
RR-Trespassers	2/15/2011	CAMDEN, MO	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	2/16/2011	MACOMB, MI	Beside track, struck by on-track equipment	Limited Board resources
RR-Trespassers	2/16/2011	NASSAU, NY	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	2/17/2011	SUMTER, FL	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	2/17/2011	SAN BERNARDINO, CA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	2/18/2011	MCCLAIN, OK	Alongside of on-track equipment, slipped,	Limited Board resources
RR-Trespassers	2/18/2011	LUZERNE, PA	On track, struck by on-track equipment	Limited Board resources

Appendix B: Accidents Required to be Investigated Under Section 1131 But not Investigated				
<i>Mode</i>	ACCIDENT DATE	ACCIDENT LOCATION	ACCIDENT CIRCUMSTANCES	REASON NOT INVESTIGATED
RR-Tresspassers	2/18/2011	MIDDLESEX, NJ	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	2/19/2011	BEXAR, TX	On highway-rail crossing, collision impact	Limited Board resources
RR-Tresspassers	2/19/2011	CUYAHOGA, OH	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	2/22/2011	JIM HOGG, TX	Between tracks, struck by on-track equipment	Limited Board resources
RR-Tresspassers	2/22/2011	LOS ANGELES, CA	On highway-rail crossing, collision impact	Limited Board resources
RR-Tresspassers	2/23/2011	BROWARD, FL	On highway-rail crossing, struck by on-track	Limited Board resources
RR-Tresspassers	2/23/2011	MONROE, MI	On highway-rail crossing, collision impact	Limited Board resources
RR-Tresspassers	2/23/2011	MCKINLEY, NM	On highway-rail crossing, collision impact	Limited Board resources
RR-Tresspassers	2/24/2011	ORANGE, CA	Between tracks, struck by on-track equipment	Limited Board resources
RR-Tresspassers	2/26/2011	KINGSBURY, SD	On end of car, climatic condition, exposure to	Limited Board resources
RR-Tresspassers	2/27/2011	JEFFERSON, AL	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	3/1/2011	SANTA CLARA, CA	On platform, struck by on-track equipment	Limited Board resources
RR-Tresspassers	3/1/2011	RIVERSIDE, CA	On highway-rail crossing, collision impact	Limited Board resources
RR-Tresspassers	3/2/2011	ALAMEDA, CA	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	3/2/2011	NEW LONDON, CT	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	3/3/2011	SALT LAKE, UT	On highway-rail crossing, collision impact	Limited Board resources
RR-Tresspassers	3/5/2011	LA CROSSE, WI	Between tracks, struck by on-track equipment	Limited Board resources
RR-Tresspassers	3/8/2011	PHILADELPHIA, PA	Alongside of on-track equipment, struck by on-track equipment	Limited Board resources
RR-Tresspassers	3/8/2011	MASON, KY	Beside track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	3/9/2011	LOS ANGELES, CA	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	3/10/2011	SANDERS, MT	Between tracks, Other (describe in narrative)	Limited Board resources
RR-Tresspassers	3/11/2011	MORGAN, CO	In/operating vehicle, collision/impact - auto,	Limited Board resources
RR-Tresspassers	3/11/2011	SHELBY, TN	Between tracks, struck by on-track equipment	Limited Board resources
RR-Tresspassers	3/12/2011	BARBER, KS	On highway-rail crossing, collision impact	Limited Board resources
RR-Tresspassers	3/13/2011	WAYNE, MI	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	3/14/2011	KNOX, TN	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	3/14/2011	BLOUNT, TN	Alongside of on-track equipment, struck by on-track equipment	Limited Board resources
RR-Tresspassers	3/15/2011	BEAVER, PA	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	3/16/2011	FAYETTE, WV	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	3/17/2011	ALLEGANY, MD	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	3/17/2011	PLYMOUTH, MA	On highway-rail crossing, struck by on-track	Limited Board resources

Appendix B: Accidents Required to be Investigated Under Section 1131 But not Investigated				
<i>Mode</i>	<i>ACCIDENT DATE</i>	<i>ACCIDENT LOCATION</i>	<i>ACCIDENT CIRCUMSTANCES</i>	<i>REASON NOT INVESTIGATED</i>
RR-Trespassers	3/18/2011	TARRANT, TX	Beside track, struck by on-track equipment	Limited Board resources
RR-Trespassers	3/18/2011	COBB, GA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	3/18/2011	EL PASO, TX	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	3/18/2011	CAMDEN, NJ	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	3/20/2011	MADERA, CA	Beside track, struck by on-track equipment	Limited Board resources
RR-Trespassers	3/21/2011	SAN DIEGO, CA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	3/21/2011	TEHAMA, CA	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	3/24/2011	ALAMEDA, CA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	3/25/2011	MARION, OR	Beside track, slipped, fell, stumbled, other	Limited Board resources
RR-Trespassers	3/25/2011	WAYNE, MI	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	3/26/2011	BALTIMORE, MD	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	3/30/2011	THURSTON, WA	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	3/30/2011	JEFFERSON, MO	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	3/30/2011	PRINCE GEORGE'S, MD	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	3/31/2011	MASON, KY	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	4/1/2011	SKAGIT, WA	Beside track, struck by on-track equipment	Limited Board resources
RR-Trespassers	4/2/2011	LANCASTER, NE	Beside track, struck by on-track equipment	Limited Board resources
RR-Trespassers	4/3/2011	FRANKLIN, KS	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	4/3/2011	BALTIMORE, MD	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	4/3/2011	PEACH, GA	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	4/4/2011	COOK, IL	On track, struck by other remote control locomotive	Limited Board resources
RR-Trespassers	4/4/2011	BROWARD, FL	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	4/8/2011	MARTIN, FL	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	4/8/2011	MIAMI, KS	Beside track, slipped, fell, stumbled, other	Limited Board resources
RR-Trespassers	4/8/2011	BREVARD, FL	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	4/9/2011	CHARLES, MD	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	4/9/2011	POLK, TN	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	4/10/2011	DESHA, AR	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	4/11/2011	DOUGLAS, IL	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	4/13/2011	RANDOLPH, MO	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	4/14/2011	PAWNEE, OK	Beside track, struck by on-track equipment	Limited Board resources

Appendix B: Accidents Required to be Investigated Under Section 1131 But not Investigated				
<i>Mode</i>	<i>ACCIDENT DATE</i>	<i>ACCIDENT LOCATION</i>	<i>ACCIDENT CIRCUMSTANCES</i>	<i>REASON NOT INVESTIGATED</i>
RR-Tresspassers	4/15/2011	HARRIS, TX	On highway-rail crossing, collision impact	Limited Board resources
RR-Tresspassers	4/15/2011	BURLINGTON, NJ	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	4/15/2011	PRINCE GEORGE'S, MD	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	4/15/2011	SANTA CLARA, CA	On highway-rail crossing, collision impact	Limited Board resources
RR-Tresspassers	4/15/2011	MERCER, NJ	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	4/15/2011	CONTRA COSTA, CA	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	4/16/2011	CRISP, GA	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	4/16/2011	HAMILTON, TN	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	4/17/2011	COOK, IL	Between tracks, struck by object	Limited Board resources
RR-Tresspassers	4/17/2011	COOK, IL	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	4/17/2011	SAN DIEGO, CA	On highway-rail crossing, collision impact	Limited Board resources
RR-Tresspassers	4/18/2011	EL PASO, TX	Between tracks, struck by on-track equipment	Limited Board resources
RR-Tresspassers	4/18/2011	PALM BEACH, FL	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	4/19/2011	KOOTENAI, ID	Between tracks, struck by on-track equipment	Limited Board resources
RR-Tresspassers	4/20/2011	JEFFERSON, LA	On highway-rail crossing, collision impact	Limited Board resources
RR-Tresspassers	4/20/2011	CALCASIEU, LA	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	4/21/2011	TAYLOR, TX	Beside track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	4/21/2011	SOLANO, CA	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	4/21/2011	GRAYSON, TX	On pole/signal mast, sudden, unexpected	Limited Board resources
RR-Tresspassers	4/22/2011	BERKS, PA	Between tracks, struck by on-track equipment	Limited Board resources
RR-Tresspassers	4/23/2011	GRUNDY, IL	Between tracks, struck by on-track equipment	Limited Board resources
RR-Tresspassers	4/23/2011	HURON, OH	On highway-rail crossing, collision impact	Limited Board resources
RR-Tresspassers	4/23/2011	MIDLAND, TX	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	4/24/2011	WASHBURN, WI	Beside track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	4/25/2011	LEHIGH, PA	Between tracks, struck by on-track equipment	Limited Board resources
RR-Tresspassers	4/25/2011	ULSTER, NY	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	4/25/2011	DE KALB, GA	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	4/26/2011	SPARTANBURG, SC	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	4/26/2011	MIDDLESEX, NJ	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	4/26/2011	HAMILTON, TN	Beside track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	4/27/2011	ORANGE, TX	On track, struck by on-track equipment	Limited Board resources

Appendix B: Accidents Required to be Investigated Under Section 1131 But not Investigated				
<i>Mode</i>	<i>ACCIDENT DATE</i>	<i>ACCIDENT LOCATION</i>	<i>ACCIDENT CIRCUMSTANCES</i>	<i>REASON NOT INVESTIGATED</i>
RR-Trespassers	4/27/2011	MADERA, CA	Beside track, struck by on-track equipment	Limited Board resources
RR-Trespassers	4/28/2011	ORANGE, CA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	4/29/2011	RAMSEY, MN	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	4/30/2011	ATCHISON, MO	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	5/1/2011	WILLIAMS, OH	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	5/1/2011	BEXAR, TX	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	5/1/2011	MCKINLEY, NM	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	5/1/2011	MECKLENBURG, NC	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	5/1/2011	ALAMEDA, CA	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	5/2/2011	MCDONALD, MO	Beside track, struck by on-track equipment	Limited Board resources
RR-Trespassers	5/4/2011	JOHNSTON, NC	Beside track, Other (describe narrative)	Limited Board resources
RR-Trespassers	5/4/2011	GARFIELD, OK	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	5/5/2011	SAN JOAQUIN, CA	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	5/7/2011	COOK, IL	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	5/7/2011	HARDIN, KY	Beside track, struck by on-track equipment	Limited Board resources
RR-Trespassers	5/7/2011	LOS ANGELES, CA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	5/8/2011	NEW YORK, NY	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	5/8/2011	JACKSON, MO	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	5/8/2011	SOUTHAMPTON, VA	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	5/10/2011	BALTIMORE, MD	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	5/10/2011	KING, WA	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	5/12/2011	SHASTA, CA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	5/13/2011	COOK, IL	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	5/14/2011	WASHINGTON, AL	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	5/17/2011	SUFFOLK, NY	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	5/17/2011	CHARLES, MD	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	5/18/2011	WAUKESHA, WA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	5/18/2011	COOK, IL	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	5/18/2011	ORANGE, CA	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	5/19/2011	SCOTT, IA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	5/20/2011	MCLENNAN, TX	Between tracks, struck by on-track equipment	Limited Board resources

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<i>Mode</i>	<i>ACCIDENT DATE</i>	<i>ACCIDENT LOCATION</i>	<i>ACCIDENT CIRCUMSTANCES</i>	<i>REASON NOT INVESTIGATED</i>
RR-Trespassers	5/20/2011	GENESEE, NY	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	5/20/2011	BROWARD, FLY	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	5/21/2011	LYNCHBURG, VA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	5/21/2011	DODGE, WI	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	5/23/2011	WASHINGTON, PA	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	5/23/2011	LEHIGH, PA	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	5/25/2011	BUCKS, PA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	5/25/2011	DU PAGE, IL	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	5/26/2011	SNOHOMISH, WA	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	5/26/2011	HARLAN, KY	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	5/27/2011	SUFFOLK, NY	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	5/28/2011	ASCENSION, LA	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	5/29/2011	BELL, TX	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	5/29/2011	MADISON, IL	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	5/29/2011	JEFFERSON, WI	Beside track, struck by on-track equipment	Limited Board resources
RR-Trespassers	5/30/2011	MCKEAN, PA	On bridge/trestle, ran into object/equipment	Limited Board resources
RR-Trespassers	5/30/2011	CAMPBELL, KY	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	5/30/2011	CLAIBORNE, TN	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	5/31/2011	STUTSMAN, ND	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	5/31/2011	KANAWHA, WV	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	5/31/2011	SALINE, AR	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	6/2/2011	NEW CASTLE, DE	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	6/2/2011	JEFFERSON, AL	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	6/4/2011	SACRAMENTO, CA	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	6/4/2011	PIMA, AZ	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	6/4/2011	FULTON, GA	Beside track, struck by on-track equipment	Limited Board resources
RR-Trespassers	6/4/2011	PHILADELPHIA, PA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	6/6/2011	PINAL, AZ	Beside track, slipped, fell, stumbled, other	Limited Board resources
RR-Trespassers	6/6/2011	MERCED, CA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	6/7/2011	KENTON, KY	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	6/7/2011	HALL, GA	On track, struck by on-track equipment	Limited Board resources

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<i>Mode</i>	<i>ACCIDENT DATE</i>	<i>ACCIDENT LOCATION</i>	<i>ACCIDENT CIRCUMSTANCES</i>	<i>REASON NOT INVESTIGATED</i>
RR-Trespassers	6/9/2011	LAPEER, MI	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	6/9/2011	HILLSBOROUGH, FL	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	6/11/2011	EASTLAND, TX	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	6/11/2011	HARRIS, TX	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	6/12/2011	LOS ANGELES, CA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	6/16/2011	YUBA, CA	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	6/17/2011	EL PASO, TX	On pole/signal mast, sudden, unexpected	Limited Board resources
RR-Trespassers	6/19/2011	OTSEGO, NY	On highway-rail crossing, struck by on-track	Limited Board resources
RR-Trespassers	6/19/2011	BROWARD, FL	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	6/19/2011	DENVER, CO	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	6/19/2011	ST CHARLES, LA	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	6/20/2011	COOK, IL	Beside track, struck by on-track equipment	Limited Board resources
RR-Trespassers	6/20/2011	GASTON, NC	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	6/22/2011	MONROE, MO	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	6/22/2011	BROWARD, FL	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	6/22/2011	NORTHUMBERLAND, PA	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	6/23/2011	ALAMEDA, CA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	6/23/2011	MERCED, CA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	6/24/2011	FREDERICKSBURG, VA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	6/24/2011	BEXAR, TX	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	6/25/2011	WATONWAN, MN	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	6/25/2011	RENO, KS	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	6/25/2011	WAYNE, IL	Between tracks, Other (describe in narrative)	Limited Board resources
RR-Trespassers	6/25/2011	SUMNER, KS	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	6/26/2011	HARDEMAN, TN	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	6/26/2011	MUSKEGON, MI	On bridge/trestle, Other (describe in narrative)	Limited Board resources
RR-Trespassers	6/27/2011	SAN BERNARDINO, CA	On end of car, slipped, fell, stumbled, other	Limited Board resources
RR-Trespassers	6/29/2011	SAN BERNARDINO, CA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	6/29/2011	HILLSBOROUGH, FL	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	6/29/2011	ERIE, PA	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	6/30/2011	SHAWNEE, KS	Between tracks, struck by on-track equipment	Limited Board resources

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<i>Mode</i>	<i>ACCIDENT DATE</i>	<i>ACCIDENT LOCATION</i>	<i>ACCIDENT CIRCUMSTANCES</i>	<i>REASON NOT INVESTIGATED</i>
RR-Tresspassers	6/30/2011	YOLO, CA	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	6/30/2011	SAN BERNARDINO, CA	On highway-rail crossing, collision impact	Limited Board resources
RR-Tresspassers	7/1/2011	BERKELEY, WV	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	7/3/2011	DU PAGE, IL	On highway-rail crossing, collision impact	Limited Board resources
RR-Tresspassers	7/3/2011	LEE, IA	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	7/3/2011	EL PASO, CO	Between tracks, struck by on-track equipment	Limited Board resources
RR-Tresspassers	7/3/2011	DELAWARE, IN	On highway-rail crossing, collision impact	Limited Board resources
RR-Tresspassers	7/6/2011	WESTCHESTER, NY	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	7/6/2011	DUTCHESS, NY	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	7/7/2011	RIVERSIDE, CA	Between tracks, struck by on-track equipment	Limited Board resources
RR-Tresspassers	7/7/2011	PIERCE, WA	Between tracks, struck by on-track equipment	Limited Board resources
RR-Tresspassers	7/7/2011	BENTON, MN	Between tracks, struck by on-track equipment	Limited Board resources
RR-Tresspassers	7/7/2011	HAMILTON, OH	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	7/8/2011	LA SALLE, TX	Beside track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	7/8/2011	DOUGLAS, GA	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	7/9/2011	PINAL, AZ	On track, struck by object	Limited Board resources
RR-Tresspassers	7/9/2011	VOLUSIA, FL	On highway-rail crossing, collision impact	Limited Board resources
RR-Tresspassers	7/11/2011	YORK, ME	On highway-rail crossing, collision impact	Limited Board resources
RR-Tresspassers	7/11/2011	BUTTE, CA	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	7/12/2011	MISSISSIPPI, AR	On highway-rail crossing, collision impact	Limited Board resources
RR-Tresspassers	7/13/2011	COOK, IL	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	7/14/2011	PALM BEACH, FL	Beside track, ran into on-track equipment	Limited Board resources
RR-Tresspassers	7/15/2011	MONTGOMERY, MD	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	7/16/2011	HARTFORD, CT	On highway-rail crossing, collision impact	Limited Board resources
RR-Tresspassers	7/16/2011	HUNTINGDON, PA	Beside track, Other (describe narrative)	Limited Board resources
RR-Tresspassers	7/17/2011	MECKLENBURG, NC	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	7/17/2011	DE KALB, IN	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	7/17/2011	STANISLAUS, CA	Beside track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	7/17/2011	SAN DIEGO, CA	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	7/18/2011	VENTURA, CA	On track, struck by on-track equipment	Limited Board resources
RR-Tresspassers	7/18/2011	PASCO, FL	On highway-rail crossing, collision impact	Limited Board resources

Appendix B: Accidents Required to be Investigated Under Section 1131 But not Investigated				
<i>Mode</i>	<i>ACCIDENT DATE</i>	<i>ACCIDENT LOCATION</i>	<i>ACCIDENT CIRCUMSTANCES</i>	<i>REASON NOT INVESTIGATED</i>
RR-Trespassers	7/19/2011	UNION, NJ	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	7/20/2011	RICHLAND, OH	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	7/21/2011	COOK, IL	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	7/22/2011	ST MARY, LA	In/operating vehicle, highway-rail	Limited Board resources
RR-Trespassers	7/22/2011	NEW HAVEN, CT	Beside track, collision/impact-auto,	Limited Board resources
RR-Trespassers	7/22/2011	LIMESTONE, AL	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	7/22/2011	BERNALILLO, NM	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	7/22/2011	WRIGHT, MN	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	7/23/2011	HOWELL, MO	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	7/24/2011	WELD, CO	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	7/24/2011	UNION, NJ	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	7/25/2011	IROQUOIS, IL	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	7/25/2011	ALLEGHENY, PA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	7/25/2011	CAMPBELL, KY	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	7/26/2011	AUDRAIN, MO	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	7/26/2011	MADERA, CA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	7/29/2011	CARBON, UT	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	7/29/2011	DU PAGE, IL	Beside track, struck by on-track equipment	Limited Board resources
RR-Trespassers	7/30/2011	WISE, TX	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	7/30/2011	ONONDAGA, NY	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	7/30/2011	NACOGDOCHES, TX	Beside track, struck by on-track equipment	Limited Board resources
RR-Trespassers	7/31/2011	CLARK, WI	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	7/31/2011	SOMERSET, PA	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	7/31/2011	ALLEGANY, NY	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	8/8/2010	BALTIMORE, MD	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	8/8/2010	PIERCE, WA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	8/1/2011	CAMPBELL, TN	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	8/2/2011	BROWARD, FL	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	8/2/2011	SUMNER, TN	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	8/3/2011	ORANGE, FL	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	8/4/2011	SUFFOLK, MA	On track, struck by on-track equipment	Limited Board resources

Appendix B: Accidents Required to be Investigated Under Section 1131 But not Investigated				
<i>Mode</i>	<i>ACCIDENT DATE</i>	<i>ACCIDENT LOCATION</i>	<i>ACCIDENT CIRCUMSTANCES</i>	<i>REASON NOT INVESTIGATED</i>
RR-Trespassers	8/4/2011	NEWBERRY, SC	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	8/5/2011	KING, WA	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	8/5/2011	ALBANY, NY	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	8/5/2011	LAFAYETTE, LA	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	8/6/2011	PIERCE, WA	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	8/7/2011	EFFINGHAM, IL	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	8/8/2011	CLEVELAND, OK	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	8/9/2011	BROWARD, FL	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	8/9/2011	PASSAIC, NJ	Beside track, struck by on-track equipment	Limited Board resources
RR-Trespassers	8/9/2011	MONTGOMERY, TX	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	8/9/2011	STANISLAUS, CA	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	8/9/2011	SAN BERNARDINO, CA	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	8/10/2011	VENTURA, CA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	8/10/2011	MCDOWELL, NC	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	8/10/2011	HARRIS, TX	In cab or on walkways of locomotive, on track	Limited Board resources
RR-Trespassers	8/10/2011	FRANKLIN, OH	Beside track, electrical shock, other (explain in	Limited Board resources
RR-Trespassers	8/11/2011	HUNTINGTON, IN	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	8/12/2011	JEFFERSON, KY	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	8/13/2011	PEORIA, IL	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	8/13/2011	SUFFOLK, NY	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	8/13/2011	SNOHOMISH, WA	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	8/13/2011	HALL, NE	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	8/13/2011	DAWES, NE	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	8/14/2011	KOOTENAI, ID	In operating vehicle, collision-between on track	Limited Board resources
RR-Trespassers	8/14/2011	MONROE, WI	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	8/15/2011	SUFFOLK, NY	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	8/16/2011	HIDALGOK, NM	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	8/16/2011	DADE, FL	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	8/17/2011	LYON, KS	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	8/18/2011	KING, WA	Beside track, struck by on-track equipment	Limited Board resources
RR-Trespassers	8/18/2011	GWINNETT, GA	On track, struck by on-track equipment	Limited Board resources

Appendix B: Accidents Required to be Investigated Under Section 1131 But not Investigated				
<i>Mode</i>	<i>ACCIDENT DATE</i>	<i>ACCIDENT LOCATION</i>	<i>ACCIDENT CIRCUMSTANCES</i>	<i>REASON NOT INVESTIGATED</i>
RR-Trespassers	8/19/2011	DE KALB, IL	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	8/19/2011	GIBSON, IN	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	8/20/2011	SHASTA, CA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	8/20/2011	MCKINLEY, NM	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	8/21/2011	LA CROSSE, WI	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	8/21/2011	SANGAMON, IL	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	8/21/2011	CLARK, IN	On bridge/trestle, thrill seat	Limited Board resources
RR-Trespassers	8/21/2011	MONMOUTH, NJ	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	8/21/2011	SCOTT, MS	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	8/22/2011	NEW CASTLE, DE	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	8/22/2011	HAMILTON, TN	Between track, struck by on-track equipment	Limited Board resources
RR-Trespassers	8/22/2011	HAMILTON, TN	Between track, struck by on-track equipment	Limited Board resources
RR-Trespassers	8/24/2011	WESTMORELAND, PA	Between tracks, sudden, unexplained	Limited Board resources
RR-Trespassers	8/24/2011	SANTA CLARA, CA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	8/24/2011	ALLEGHENY, PA	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	8/25/2011	DOUGLAS, CO	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	8/26/2011	THURSTON, WA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	8/27/2011	VAN BUREN, MI	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	8/28/2011	BARTON, MO	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	8/28/2011	FRESNO, CA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	8/31/2011	CAMDEN, NJ	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	8/31/2011	NASSAU, NY	On track, struck by object	Limited Board resources
RR-Trespassers	9/2/2011	FAYETTE, KY	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	9/3/2011	MCKINLEY, NM	Beside track, struck by on-track equipment	Limited Board resources
RR-Trespassers	9/3/2011	BLACKFORD, IN	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	9/3/2011	BLACKFORD, IN	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	9/3/2011	TROUP, GA	Beside track, slipped, fell, stumbled, other	Limited Board resources
RR-Trespassers	9/4/2011	HILL, MT	D2, collision/impact-auto, truck, bus, van, etc.	Limited Board resources
RR-Trespassers	9/6/2011	COWETA, GA	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	9/7/2011	TARRANT, TX	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	9/7/2011	NASSAU, NY	On track, struck by on-track equipment	Limited Board resources

Appendix B: Accidents Required to be Investigated Under Section 1131 But not Investigated				
<i>Mode</i>	<i>ACCIDENT DATE</i>	<i>ACCIDENT LOCATION</i>	<i>ACCIDENT CIRCUMSTANCES</i>	<i>REASON NOT INVESTIGATED</i>
RR-Trespassers	9/8/2011	ALLEGANY, MD	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	9/8/2011	ALLEGANY, MD	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	9/9/2011	OLDHAM, KY	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	9/9/2011	FAYETTE, KY	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	9/10/2011	SPARTANBURG, SC	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	9/10/2011	SAN FRANCISCO, CA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	9/14/2011	BUTLER, OH	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	9/15/2011	DU PAGE, IL	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	9/16/2011	SUFFOLK, MA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	9/17/2011	SHASTA, CA	Beside track, struck by on-track equipment	Limited Board resources
RR-Trespassers	9/17/2011	WHITLEY, KY	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	9/17/2011	SANGAMON, IL	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	9/20/2011	HENDERSON, KY	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	9/21/2011	MIDDLESEX, MA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	9/22/2011	PICKENS, SC	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	9/22/2011	PICKENS, SC	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	9/23/2011	CARLTON, MN	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	9/24/2011	PIERCE, GA	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	9/24/2011	EL PASO, TX	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	9/24/2011	LAPEER, MI	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	9/25/2011	ORANGE, TX	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	9/25/2011	CLEVELAND, OK	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	9/25/2011	MONTGOMERY, OH	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	9/26/2011	DAVIDSON, TN	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	9/27/2011	SEDGWICK, CO	Alongside of on-track equipment, struck by on-track equipment	Limited Board resources
RR-Trespassers	9/27/2011	TAYLOR, TX	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	9/28/2011	NEW HAVEN, CT	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	9/28/2011	DAVIS, UT	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	9/29/2011	COOK, IL	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	9/29/2011	MECKLENBURG, NC	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	9/29/2011	GIBSON, IN	On track, struck by on-track equipment	Limited Board resources

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<i>Mode</i>	<i>ACCIDENT DATE</i>	<i>ACCIDENT LOCATION</i>	<i>ACCIDENT CIRCUMSTANCES</i>	<i>REASON NOT INVESTIGATED</i>
RR-Trespassers	9/29/2011	COOK, IL	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	9/29/2011	GALLATIN, MT	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	9/30/2011	ORANGE, NC	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	10/1/2011	MARION, OR	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	10/2/2011	BECKER, MN	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	10/2/2011	MARION, IN	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	10/2/2011	PIMA, AZ	Beside track, struck by on-track equipment	Limited Board resources
RR-Trespassers	10/2/2011	MARION, OR	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	10/2/2011	PASSAIC, NJ	On bridge/trestle, struck by on-track equipment	Limited Board resources
RR-Trespassers	10/2/2011	PASSAIC, NJ	On bridge/trestle, struck by on-track equipment	Limited Board resources
RR-Trespassers	10/3/2011	BERGEN, NJ	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	10/4/2011	KERN, CA	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	10/5/2011	SNOHOMISH, WA	Beside track, struck by on-track equipment	Limited Board resources
RR-Trespassers	10/5/2011	LOS ANGELES, CA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	10/5/2011	NASSAU, NY	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	10/5/2011	SAN DIEGO, CA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	10/8/2011	GRANT, IN	On highway-rail crossing, struck by on-track	Limited Board resources
RR-Trespassers	10/8/2011	RIVERSIDE, CA	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	10/8/2011	NEW CASTLE, DE	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	10/9/2011	CONTRA COSTA, CA	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	10/9/2011	POTTAWATTAMIE, IA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	10/9/2011	KOSCIUSKO, IN	Beside track, on track equipment, other incidents	Limited Board resources
RR-Trespassers	10/11/2011	SHERBURNE, MN	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	10/12/2011	RIVERSIDE, CA	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	10/13/2011	STRAFFORD, NH	On highway-rail crossing, struck by on-track	Limited Board resources
RR-Trespassers	10/13/2011	SACRAMENTO, CA	Beside track, struck by on-track equipment	Limited Board resources
RR-Trespassers	10/13/2011	NEWPORT NEWS, VA	D2, slipped, fell, stumbled, other	Limited Board resources
RR-Trespassers	10/14/2011	ROBESON, NC	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	10/14/2011	LUCAS, OH	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	10/15/2011	PALM BEACH, FL	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	10/15/2011	DU PAGE, IL	Between tracks, struck by on-track equipment	Limited Board resources

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<i>Mode</i>	<i>ACCIDENT DATE</i>	<i>ACCIDENT LOCATION</i>	<i>ACCIDENT CIRCUMSTANCES</i>	<i>REASON NOT INVESTIGATED</i>
RR-Trespassers	10/15/2011	SPOKANE, WA	Beside track, struck by on-track equipment	Limited Board resources
RR-Trespassers	10/16/2011	MADISON, IN	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	10/16/2011	ORANGE, TX	Alongside of on-track equipment, struck by on-track equipment	Limited Board resources
RR-Trespassers	10/16/2011	COMAL, TX	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	10/18/2011	BUTLER, OH	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	10/21/2011	DU PAGE, IL	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	10/22/2011	MONTGOMERY, OH	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	10/22/2011	WHARTON, TX	Alongside of on-track equipment, struck by on-track equipment	Limited Board resources
RR-Trespassers	10/22/2011	KANAWHA, WV	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	10/22/2011	UNION, OR	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	10/22/2011	PIERCE, WA	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	10/23/2011	MCHENRY, IL	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	10/23/2011	HUMBOLDT, NV	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	10/24/2011	NORFOLK, MA	Beside track, struck by on-track equipment	Limited Board resources
RR-Trespassers	10/24/2011	GUADALUPE, TX	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	10/25/2011	UNION, IL	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	10/26/2011	LAKE, IN	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	10/26/2011	ORANGE, CA	On platform, struck by on-track equipment	Limited Board resources
RR-Trespassers	10/26/2011	MIDDLESEX, MA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	10/26/2011	SACRAMENTO, CA	Beside track, struck by on-track equipment	Limited Board resources
RR-Trespassers	10/28/2011	CAMDEN, NJ	On platform, sudden, unexpected movement,	Limited Board resources
RR-Trespassers	10/28/2011	CHAMBERS, AL	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	10/28/2011	SAN DIEGO, CA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	10/28/2011	LOGAN, IL	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	10/28/2011	DAVIDSON, TN	Alongside of on-track equipment, struck by on-track equipment	Limited Board resources
RR-Trespassers	10/28/2011	OKLAHOMA, OK	Beside track, shot	Limited Board resources
RR-Trespassers	10/29/2011	MIDLAND, TX	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	10/29/2011	NEW KENT, VA	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	10/30/2011	ROWAN, NC	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	11/1/2011	COOK, IL	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	11/2/2011	CAMDEN, NJ	On track, struck by on-track equipment	Limited Board resources

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<i>Mode</i>	<i>ACCIDENT DATE</i>	<i>ACCIDENT LOCATION</i>	<i>ACCIDENT CIRCUMSTANCES</i>	<i>REASON NOT INVESTIGATED</i>
RR-Trespassers	11/2/2011	KENTON, KY	Beside track, struck by on-track equipment	Limited Board resources
RR-Trespassers	11/2/2011	MARION, IN	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	11/3/2011	CUMBERLAND, NC	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	11/3/2011	ESCAMBIA, FL	Car on top of (rail car), struck by on-track	Limited Board resources
RR-Trespassers	11/3/2011	BEXAR, TX	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	11/3/2011	PALM BEACH, FL	Beside track, struck by on-track equipment	Limited Board resources
RR-Trespassers	11/4/2011	LOS ANGELES, CA	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	11/5/2011	SANGAMON, IL	On track, other (describe in narrative)	Limited Board resources
RR-Trespassers	11/5/2011	QUEENS, NY	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	11/5/2011	PULASKI, AR	Beside track, struck by on-track equipment	Limited Board resources
RR-Trespassers	11/5/2011	NEOSHO, KS	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	11/6/2011	MEDINA, OH	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	11/7/2011	SKAGIT, WA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	11/8/2011	MONTGOMERY, PA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	11/8/2011	PALM BEACH, FL	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	11/9/2011	DU PAGE, IL	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	11/9/2011	COLUMBIA, PA	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	11/9/2011	DUVAL, FL	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	11/9/2011	EL PASO, TX	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	11/9/2011	CLARK, NV	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	11/10/2011	CHARLESTON, SC	On end of car, slipped, fell, stumbled, other	Limited Board resources
RR-Trespassers	11/11/2011	DENTON, TX	Beside track, Other (describe narrative)	Limited Board resources
RR-Trespassers	11/12/2011	HAMILTON, OH	Beside track, struck by on-track equipment	Limited Board resources
RR-Trespassers	11/13/2011	MONMOUTH, NJ	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	11/14/2011	FULTON, IL	Beside track, struck by on-track equipment	Limited Board resources
RR-Trespassers	11/14/2011	MERCED, CA	Beside track, struck by on-track equipment	Limited Board resources
RR-Trespassers	11/15/2011	ESSEX, NJ	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	11/17/2011	AMHERST, VA	On bridge/trestle, struck by on-track equipment	Limited Board resources
RR-Trespassers	11/18/2011	WAYNE, NC	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	11/20/2011	KERN, CA	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	11/20/2011	SAN LUIS OBISPO, CA	On track, struck by on-track equipment	Limited Board resources

Appendix B: Accidents Required to be Investigated Under Section 1131 But not Investigated				
<i>Mode</i>	<i>ACCIDENT DATE</i>	<i>ACCIDENT LOCATION</i>	<i>ACCIDENT CIRCUMSTANCES</i>	<i>REASON NOT INVESTIGATED</i>
RR-Trespassers	11/20/2011	JACKSON, MO	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	11/21/2011	NATRONA, WY	In/operating vehicle, struck by on-track	Limited Board resources
RR-Trespassers	11/21/2011	BUCHANAN, MO	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	11/21/2011	RAMSEY, MN	Beside track, Climatic condition, exposure to	Limited Board resources
RR-Trespassers	11/22/2011	RIVERSIDE, CA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	11/25/2011	BENTON, WA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	11/26/2011	SANTA CLARA, CA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	11/27/2011	CHEROKEE, TX	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	11/27/2011	PRINCE WILLIAM, VA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	11/29/2011	FRESNO, CA	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	11/30/2011	MERCED, CA	Beside track, struck by on-track equipment	Limited Board resources
RR-Trespassers	12/1/2011	KING, WA	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	12/1/2011	CARROLL, MD	Beside track, Other (describe in narrative)	Limited Board resources
RR-Trespassers	12/2/2011	SAN JOAQUIN, CA	Beside track, struck by on-track equipment	Limited Board resources
RR-Trespassers	12/3/2011	ALAMEDA, CA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	12/3/2011	BOSSIER, LA	Beside track, struck by on-track equipment	Limited Board resources
RR-Trespassers	12/3/2011	CATAWBA, NC	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	12/3/2011	SANTA CLARA, CA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	12/3/2011	SAN MATEO, CA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	12/3/2011	LOS ANGELES, CA	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	12/3/2011	COLBERT, AL	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	12/4/2011	LOS ANGELES, CA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	12/4/2011	MONTGOMERY, TX	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	12/4/2011	WILKINSON, GA	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	12/5/2011	NEW HAVEN, CT	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	12/5/2011	ADAMS, CO	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	12/5/2011	DUVAL, FL	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	12/5/2011	WESTMORELAND, PA	Beside track, struck by on-track equipment	Limited Board resources
RR-Trespassers	12/6/2011	JUNEAU, WI	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	12/7/2011	LEXINGTON, SC	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	12/8/2011	BELL, TX	On track, struck by on-track equipment	Limited Board resources

Appendix B: Accidents Required to be Investigated Under Section 1131 But not Investigated				
<i>Mode</i>	<i>ACCIDENT DATE</i>	<i>ACCIDENT LOCATION</i>	<i>ACCIDENT CIRCUMSTANCES</i>	<i>REASON NOT INVESTIGATED</i>
RR-Trespassers	12/9/2011	ORANGE, CA	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	12/9/2011	YAKIMA, WA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	12/11/2011	BERKELEY, SC	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	12/12/2011	POLK, FL	In car, Other (describe in narrative)	Limited Board resources
RR-Trespassers	12/14/2011	BROWN, SD	Between cars/locomotives, struck	Limited Board resources
RR-Trespassers	12/14/2011	RACINE, WI	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	12/16/2011	CANADIAN, OK	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	12/17/2011	BROWARD, FL	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	12/17/2011	PIMA, AZ	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	12/18/2011	LUCAS, OH	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	12/19/2011	COOK, IL	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	12/19/2011	MONTGOMERY, PA	Beside track, struck by on-track equipment	Limited Board resources
RR-Trespassers	12/19/2011	PINAL, AZ	Alongside of on-track equipment on ground,	Limited Board resources
RR-Trespassers	12/20/2011	ALAMEDA, CA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	12/20/2011	BEAVER, PA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	12/20/2011	CANYON, ID	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	12/21/2011	NEW LONDON, CT	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	12/21/2011	SUMTER, FL	On track , struck by on-track equipment	Limited Board resources
RR-Trespassers	12/21/2011	MONTGOMERY, PA	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	12/22/2011	DELAWARE, PA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	12/22/2011	FRANKLIN, WA	Beside track, struck by on-track equipment	Limited Board resources
RR-Trespassers	12/22/2011	ALLEGHENY, PA	Between tracks, struck by on-track equipment	Limited Board resources
RR-Trespassers	12/24/2011	QUEENS, NY	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	12/26/2011	BROWARD, FL	On track, other (describe in narrative)	Limited Board resources
RR-Trespassers	12/27/2011	CAMDEN, NJ	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	12/27/2011	HARRISON, MS	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	12/27/2011	COOK, IL	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	12/28/2011	ADAMS, WA	On track, struck by on-track equipment	Limited Board resources
RR-Trespassers	12/28/2011	HENDERSON, KY	On highway-rail crossing, collision impact	Limited Board resources
RR-Trespassers	12/28/2011	TARRANT, TX	Beside track, slipped, fell, stumbled, other	Limited Board resources
RR-Trespassers	12/29/2011	CIBOLA, NM	Between tracks, struck by on-track equipment	Limited Board resources

Appendix B: Accidents Required to be Investigated Under Section 1131 But not Investigated				
<i>Mode</i>	<i>ACCIDENT DATE</i>	<i>ACCIDENT LOCATION</i>	<i>ACCIDENT CIRCUMSTANCES</i>	<i>REASON NOT INVESTIGATED</i>
RR-Trespassers	12/31/2011	MERCED, CA	On track, struck by on-track equipment	Limited Board resources

Appendix C: Accidents Exceeding the expected time allotted for completion by Board Order

<i>Mode</i>	<i>ACCIDENT DATE</i>	<i>ACCIDENT LOCATION</i>	<i>ACCIDENT CIRCUMSTANCES</i>	<i>REASON NOT INVESTIGATED</i>
Aviation	7/31/2008	Owatonna, MN	Crash During Attempted Go-Around	Awaiting information from external source(s) Limited Resources Technical Complexity
Aviation	1/27/2009	Lubbock, TX	Crash on Approach	Awaiting information from external source(s) Limited Resource
Aviation	3/22/2009	Butte, MT	Crash on Approach	Involved new technology--needed to develop knowledge Limited Resources Technical complexity
Aviation	6/6/2009	Santa Fe, NM	Helicopter Accident During SAR Mission	Limited Resources
Railroad	1/6/2007	Shepherdsville, KY	CSX Freight Train Derailment of Hazardous Materials/Fire	Limited Resources
Railroad	4/1/2008	Walbridge, OH	Yard Foreman Struck by CSX Freight Car	Limited Resources
Railroad	5/28/2008	Chicago, IL	Derailment of Chicago Transit Authority Passenger Cars on Elevated Track	Limited Resources
Railroad	11/20/2008	Rialto, California	Southern California Regional Rail Authority (Metrolink) Passenger Train in Raking Collision with BNSF Railway Company Freight Train	Limited Resources
Railroad	11/28/2008	Miami International Airport	Automated People Mover Strikes Wall	Limited Resources
Railroad	5/8/2009	Boston, MA	Collision of Two Massachusetts Bay Transportation Authority Trains	Limited Resources
Railroad	5/10/2009	Selkirk, NY	Employee Fatality While Switching Cars at CSX Selkirk Yard	Limited Resources
Railroad	6/19/2009	Cherry Valley, IL	Freight Train Derailment and Fire	Limited Resources
Railroad	7/5/2009	Lake Buena Vista, FL	Disney Monorail System	Limited Resources
Railroad	7/14/2009	Bettendorf, IA	Dakota, Minnesota, & Eastern Freight Train Collides with Standing Cars	Limited Resources
Railroad	7/18/2009	San Francisco, CA	San Francisco Municipal Railway (MUNI) Rear-end Collision at West Portal Station	Limited Resources
Railroad	11/29/2009	Falls Church, VA	Washington Metropolitan Area Transit Authority (WMATA) Rear-end Collision with Standing Train	Limited Resources

Appendix C: Accidents Exceeding the expected time allotted for completion by Board Order

<i>Mode</i>	<i>ACCIDENT DATE</i>	<i>ACCIDENT LOCATION</i>	<i>ACCIDENT CIRCUMSTANCES</i>	<i>REASON NOT INVESTIGATED</i>
Railroad	12/29/2009	Minneapolis, MN	Switchman Struck While Performing Remote Control Switching Operations on a BNSF train	Limited Resources
Pipeline	5/4/2009	Palm City, FL	Rupture of Florida Gas Transmission Company Natural Gas Transmission	Limited Resources
Hazmat	7/15/2009	Swansea, SC	Rupture of Tank Truck Cargo Transfer Hose and Release of Anhydrous Ammonia	Limited Resources



United States Government Accountability Office
Washington, DC 20548

January 6, 2012

The Honorable John D. Rockefeller IV
Chairman
The Honorable Kay Bailey Hutchison
Ranking Member
Committee on Commerce, Science, and Transportation
United States Senate

The Honorable John L. Mica
Chairman
The Honorable Nick J. Rahall, II
Ranking Member
Committee on Transportation and Infrastructure
House of Representatives

Subject: *National Transportation Safety Board's Implementation of GAO Recommendations*

The National Transportation Safety Board (NTSB) investigates every civil aviation accident in the United States and selected accidents involving other transportation modes, determines the probable causes of these accidents, makes recommendations to address safety issues identified during accident investigations, performs transportation safety studies, and operates a Training Center for NTSB investigators and other transportation safety professionals. NTSB is a relatively small federal agency with about 400 staff and a fiscal year 2011 budget of about \$98 million. From 2006 through 2008, we made 21 recommendations to NTSB aimed at improving its management, information technology, accident investigation criteria, safety studies, and Training Center use. In January 2010, we reported that NTSB had fully implemented 9 of our 21 recommendations and made significant progress in implementing the remaining 12 recommendations.¹ NTSB's 2006 reauthorization legislation included language that called for us to annually evaluate NTSB's programs, operations, and activities.² As agreed with your committees, this report evaluates NTSB's progress in implementing our remaining 12 recommendations as of December 2011.

To determine the status of NTSB's implementation of our remaining 12 recommendations, we reviewed and analyzed documents obtained from NTSB since January 2010 on the actions NTSB officials have taken to address our recommendations. We also spoke with NTSB officials about these actions.

¹GAO, *National Transportation Safety Board: Issues Related to the 2010 Reauthorization*, [GAO-10-366T](#) (Washington, D.C.: Jan. 27, 2010).

²The National Transportation Safety Board Reauthorization Act of 2006, Pub. L. No. 109-443, § 5, 120 Stat. 3297, 3299, adding § 1138 to title 49 U.S.C.

We conducted this performance audit from October 2011 to January 2012 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

NTSB Has Implemented All of Our Recommendations Made Since 2006

NTSB has fully implemented all of the 21 recommendations we have made to the agency since 2006. After assessing NTSB's progress since our 2010 report, we conclude that NTSB has now fully implemented the 12 recommendations not previously closed.


Among the actions NTSB took since January 2010 are the following:

- developed a strategic training plan that is aligned with its revised strategic plan,
- established a diversity task force and management development programs to address diversity management issues,
- deployed an agencywide document management system that improved the efficiency of its process for closing recommendations,
- implemented an accounting system that tracks the amount of time employees spend on each investigation to allow better management of agency resources, and
- limited users' ability to load software or modify NTSB workstations to reduce risk to NTSB computers and internal network.

All 21 recommendations and their implementation status are listed in figure 1.

Figure 1: Implementation Status of GAO's Recommendations to NTSB, as of December 2011

Area	GAO recommendation	Status in 2010	Status as of December 2011
Communication	Develop mechanisms to facilitate communication from staff to management.	●	n/a
	Report to Congress on the status of GAO recommendations.	●	n/a
Strategic planning	Develop a revised strategic plan that follows performance-based practices.	●	n/a
Information technology (IT)	Develop an IT plan that includes policies and a strategy to guide IT acquisitions.	●	n/a
	Encrypt information/data on all laptops and mobile devices.	●	n/a
	Limit local administrator privileges to those accounts that require that level of access.	◐	●
Knowledge management	Develop a knowledge management plan to create, capture, and reuse knowledge to achieve agency objectives.	◐	●
Organizational structure	Align organizational structure to implement strategic plan.	●	n/a
	Eliminate unnecessary management layers.	◐	●
Human capital management	Develop a strategic human capital plan that is linked to the agency's overall strategic plan. The human capital plan should include strategies on staffing, recruitment and retention, training, and diversity management.	◐	●
Training	Develop a strategic training plan that is aligned with the revised strategic plan, identifies skill gaps that pose obstacles to meeting the agency's strategic goals, and establishes curriculum that would eliminate those gaps.	◐	●
	Develop a core curriculum for investigators that addresses the specialized needs for each mode.	◐	●
	Maximize the delivery of core investigator curriculum at the Training Center.	◐	●
	Develop plans to increase utilization of the Training Center.	●	n/a
Financial management	Correct violation of the Antideficiency Act related to purchasing accident insurance for employees on official travel.	●	n/a
	Correct violation of the Antideficiency Act related to NTSB's lease of the Training Center.	◐	●
	Develop a full cost accounting system to track time employees spend on each investigation and in training.	◐	●
Accident selection	Develop agency orders for all modes articulating risk-based criteria for selecting which accidents to investigate.	●	n/a
Recommendation close-out	Computerize related documentation and use concurrent reviews.	◐	●
Report development	Identify better practices in the agency and apply them to all modes.	◐	●
Safety studies	Increase use of safety studies.	◐	●



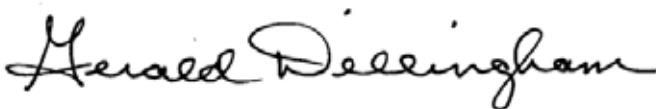
Sources: GAO and analysis of NTSB data.

Agency Comments

We provided NTSB a draft copy of this report for review and comment and we received written comments from the Chairman of NTSB, which are reprinted in enclosure I. In its written comments, NTSB agreed with our characterization of the progress it had made in implementing our recommendations.

We are sending copies of this report to the Chairman of NTSB, other congressional committees, and interested parties. In addition, this report will be available at no charge on the GAO website at <http://www.gao.gov>.

If you or your staffs have any questions regarding this report, please contact me at (202) 512-2834 or dillinghamg@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. Key contributors to this report were Cathy Colwell (Assistant Director), Andy Clinton, Fred Evans, Bert Japikse, Elizabeth Eisenstadt, Mary Marshall, Sara Ann Moessbauer, Travis Thomson, and Jack Warner.



Gerald L. Dillingham, Ph. D.
Director, Physical Infrastructure Issues

Enclosure

Enclosure I: Comments from the National Transportation Safety Board


Office of the Chairman

National Transportation Safety Board

Washington, D.C. 20594

DEC 19 2011

The Honorable Gene L. Dodaro
Comptroller General of the United States
Government Accountability Office
441 G Street, NW
Washington, D.C. 20548

Dear Mr. Dodaro: 

Thank you for the opportunity to respond to your draft report, *National Transportation Safety Board's Implementation of Government Accountability Office Recommendations* (GAO-12-306R).

We agree with your assessments (1) that the NTSB has fully implemented all of the 21 recommendations that the GAO has made to the NTSB since 2006 and (2) that we have fully implemented the 12 recommendations not previously closed since the GAO 2010 report.

We appreciate the constructive working relationship that we have developed with the GAO and would like to thank Dr. Dillingham and the GAO Physical Infrastructure Team who have worked diligently on our engagements. If you have any questions, please contact Dr. David Mayer, NTSB Managing Director, at (202) 314-6060.

Sincerely,



Deborah A.P. Hersman
Chairman

(540236)

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NATIONAL TRANSPORTATION SAFETY BOARD 2011 Annual Performance Assessment

The National Transportation Safety Board (NTSB) has achieved 95 percent of its performance targets for fiscal year 2011. NTSB performance is guided by four strategic goals: (1) accomplish objective investigations of transportation accidents, (2) from investigations, recommend and advocate actions that will improve transportation safety, (3) provide outstanding stewardship of resources, and (4) achieve organizational excellence. During fiscal year 2011, agency activities were based on 17 specific strategic objectives and 30 performance measures that cascaded from these four strategic goals and directly related to organizational and employee performance.

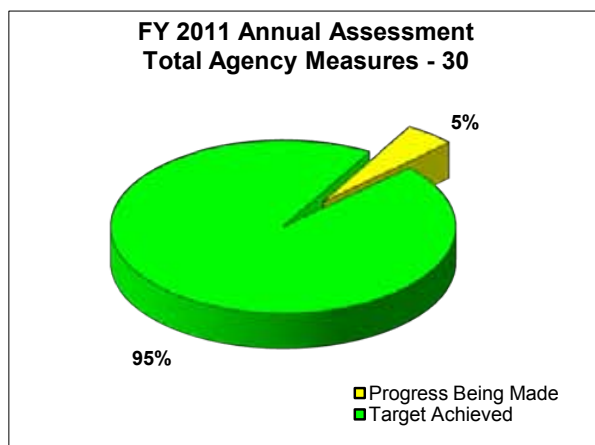


Figure 1: 2011 Annual Performance

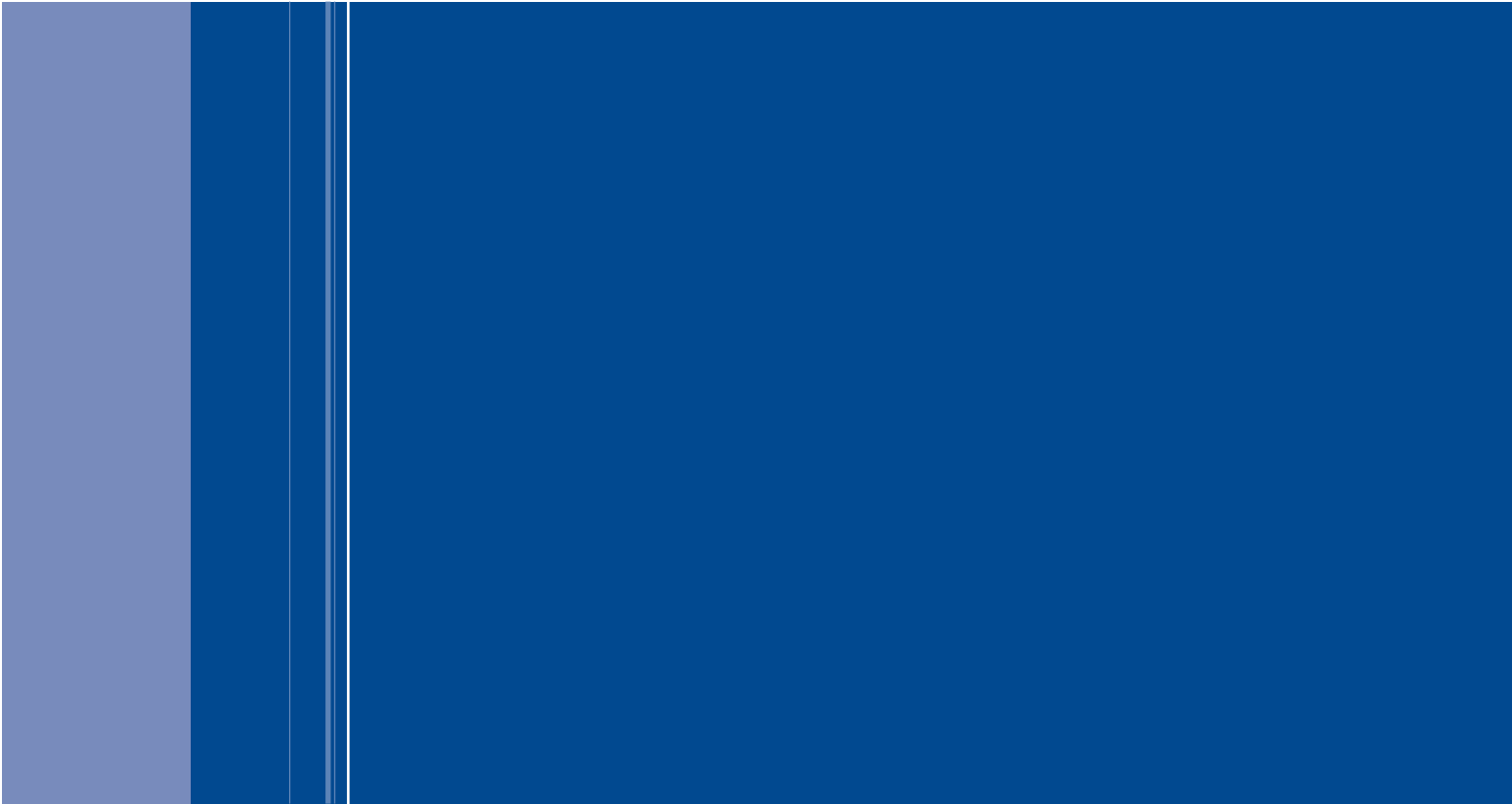
Listed below are several of the key performance targets that the agency successfully met:

- The Board adopted 12 reports that had resulted from the completion of major accident investigations.
- To raise awareness of emerging safety issues, the Board held forums, hearings, conferences and completed a safety study on the following: truck and bus safety, child passenger safety (air and automobiles), aging drivers, aviation code-sharing arrangements, fishing vessel safety, the San Bruno pipeline explosion, airplane fuselage structural integrity, family assistance, and airbag performance in general aviation.
- 78 percent of safety recommendations were implemented over the last five years.
- The Office of Administrative Law Judges disposed of 75 percent of total cases.
- The agency received an unqualified audit opinion of financial reports.

Throughout the year, performance measures were evaluated as the agency continued to develop a targeted set of outcome/results-oriented measures consistent with the NTSB's mission. As a result of this effort, the new 2012 Operating Plan includes just 14 performance measures, with 43 percent of those measures focusing on outcomes/results, in accordance with government performance management best practices. The remainder of the measures are classified as either output or efficiency performance measures. The NTSB will continue to evaluate and adjust its performance management program as applicable.

NTSB Planning Documents

- [2010-2015 NTSB Strategic Plan](#)
- [2010-2015 Information Technology Strategic Plan](#)
- [2010 Annual Report to Congress](#)
- [2011 Performance and Accountability Report](#)
- [2011-2016 Strategic Human Capital Plan](#)



**National
Transportation
Safety Board**