

2011 Environmental Health and Safety Report

“Connecting With the Amtrak® Vision”



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Vice President, Environmental Health & Safety**

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I. Letter from Vice President, Environmental Health & Safety

Dear Reader:

Thank you for reviewing the 2011 Amtrak Environmental Health and Safety (EHS) Report. We have tried to prepare an informative report of the EHS activities at Amtrak during 2011, including accomplishments, challenges and deficiencies.

In October 2011, the EHS department was expanded with the addition of the Medical and Health Services groups. There had been significant cooperation over the years among the groups on efforts such as the Amtrak pandemic flu task group; vaccination programs; evaluation and prevention programs for occupational illnesses; audiometric testing and hearing loss prevention programs; and communicable disease response. The department has integrated the new services into the general “health” section of the EHS department.

The department worked on some large, challenging projects in 2011 including:

- Development of a better onboard recycling program;
- Seeking grants to purchase lower-emission and more fuel-efficient switch locomotives;
- Implementation of the Confidential Close Calls program with our transportation unions and the Federal Railroad Administration (FRA);
- Support of the *Safe-2-Safer* process;
- Public health and food safety design and operating considerations in new rolling stock equipment.

Please check www.amtrak.com for more EHS-related information – under “Inside Amtrak” and “Reports.” If you have questions or comments about any of the information included in this report, you can contact me at deitchr@amtrak.com.

Roy Deitchman
Vice President
Environmental Health & Safety



II. Sustainability Overview

The Amtrak Strategic Plan (Fiscal Years 2011-2015) supports national strategic transportation goals and establishes goals and performance metrics in five areas: Safety and Security; Customer Focus; Mobility and Connectivity; Environment and Energy; and Financial and Organizational Excellence. These goals form the core of the company's Sustainability Program, providing a cohesive approach for safe and efficient rail transportation and promoting energy efficiency and environmental quality.

Accomplishments in the past year that support the strategic goals, along with plans for the future, are described in this report, including:

- The company's *Safe-2-Safer* program and cross-functional risk-reduction teams;
- Drinking water initiatives, including backflow prevention and a comprehensive drinking water monitoring program;
- Initiatives to reduce energy usage through train route efficiencies and locomotive practices;
- Programs for energy reduction at facilities, onboard recycling, and climate initiatives; and
- Long-term remediation projects to clean up railroad properties for current and future uses.

In 2011 Amtrak concluded its second year as a participant in the American Public Transportation Association's (APTA) Sustainability Commitment. The main goals of the APTA program are to recognize member companies for their sustainability efforts; define a set of common sustainability principles for the passenger transportation industry; and support the exchange of good practices. In support of the commitment, Amtrak completed the first comprehensive greenhouse gas inventory of all operations, as well as baseline measurements for other parameters including energy usage, water usage, and recycling levels that will provide input to future goals.

In addition to the APTA commitment, in 2011 Amtrak became a signatory to the Sustainability Declaration of the International Union of Railways (UIC). The UIC promotes rail transportation to meet the global challenges of mobility and sustainable development. In signing the Declaration, Amtrak and other UIC members express their intent to continue to improve sustainability and to make a clear statement of this commitment to stakeholders and the general public. Amtrak contributed case studies on a number of programs that support sustainable goals for a UIC survey that will share best practices with passenger railroads internationally.



III. Safety and Security

Amtrak Strategic Goal: Become North America's safest, most secure railroad by creating a collaborative, team-oriented workplace culture that minimizes risks and maximizes passenger and employee safety.

Consistent with the goal to be the safest railroad, we have worked to provide a safe work environment to employees, passengers and contractors through a collaborative effort to implement system safety programs and processes. This effort for continuous improvement in risk reduction has been accomplished through *Safe-2-Safer*; Cross-Functional Risk-Reduction Teams on safety performance leadership; the Confidential Close Calls Reporting System (C³RS); and a number of initiatives dealing with industrial hygiene. Together, they represent a team-oriented approach to identify at-risk exposures and control them in a comprehensive manner.

Risk-Reduction Programs

Safe-2-Safer

In August of 2009 Amtrak officially launched *Safe-2-Safer* (S2S), a company-wide, multi-year program designed to improve safety and security by changing at-risk behavior to safe behavior, and by fostering a more collaborative work environment. The Vice President, Transportation, was charged with the responsibility of implementing the process. This objective will be reached through training, coaching, and greater accountability for supervisors, along with broader employee engagement through peer-to-peer feedback. Rollout began in the Mid-Atlantic region and has now been completed throughout the country.

Amtrak's safety practices have contributed to a reduction in injuries across the company during the past five years including implementation of cross-functional teams that work to remove risks from the work process; initiatives to help change at-risk behaviors to safe behaviors; and labor-management safety committees. While Amtrak continues to work on its safety record, *Safe-2-Safer* aims to foster an environment that will make safety practices more effective.

The *Safe-2-Safer* initiatives involve a variety of safety practices, bringing agreement-covered and management employees together to successfully complete the elements of training, coaching, supervisor accountability and employee engagement. The essence of these practices is risk reduction through behavioral safety. By identifying behaviors that cause injuries, these behaviors can be addressed and changed.



This focus led to the formation of the Safe Behavior Inventory (SBI) initiative. During the past three years, 30 SBI division, or other work unit committees across the country, have been established to review and analyze workplace injuries and identify the at-risk behaviors that have contributed to those injuries. The committees use peer observations to identify unsafe behaviors, and once risks are identified, the information is passed along to Barrier Removal Teams consisting of both agreement and management personnel to help eliminate or reduce the risk.

Cross-Functional Risk-Reduction Safety Teams

During the past five years, 29 independent employee/management cross-function teams (CFTs) have been established throughout the Amtrak system to help create a safer workplace. The program has been supplemented by a grant from the Federal Railroad Administration (FRA) since 2010.

Teams are established after an inventory of work activities is created and a specific task or process is selected to be analyzed based on perceived risk. Next, team members identify potential hazards and concerns and evaluate the overall effectiveness of existing control measures.

The program goal for the team is to develop and implement a corrective action plan that recognizes engineering, training and education, and behavioral components.

New control measures undergo a second system analysis to evaluate their effectiveness, and all proposed solutions and progress metrics are summarized in an action plan that identifies the person responsible and a timetable for execution. Any risk reduction ideas identified during the process that are beyond the scope of the team are recorded and forwarded to the appropriate group for consideration.

CFT projects and activities have included:

- **Wilmington Shops**—At the Wilmington, DE. Shops, a CFT re-engineered procedures required to slide out the battery drawer located beneath AEM-7 electric locomotives in order to change or service batteries. Pulling out the drawer can require two or three employees due to the overall weight and the difficulty of sliding the drawer on tracks that are now more than 28 years old. To address this awkward and physically demanding task, the team created a design for a different type of jig that attaches to a forklift to facilitate the sliding of the drawer. The new device has now been re-engineered and fabricated, and new formal work procedures are being developed, along with a companion training module.



- Los Angeles—A new “flash” CFT was set up in short order with the task of addressing new equipment and processes associated with the occupancy of the new Preventive Maintenance Facility (PMF) at the Eighth Street Yard. This team began identifying hazards and risks associated with powering up cars at the new building. A systems analysis has been completed for the PMF facility.
- Seattle—The CFT met to identify risk levels, and a new team was established to identify solutions to the problem of climbing on and off rail equipment. A 67 percent risk reduction was achieved following successful implementation of the team’s recommendations. A CFT Training Program was conducted to educate new members of the team on the CFT and risk-reduction process.

Confidential Close Call Reporting System

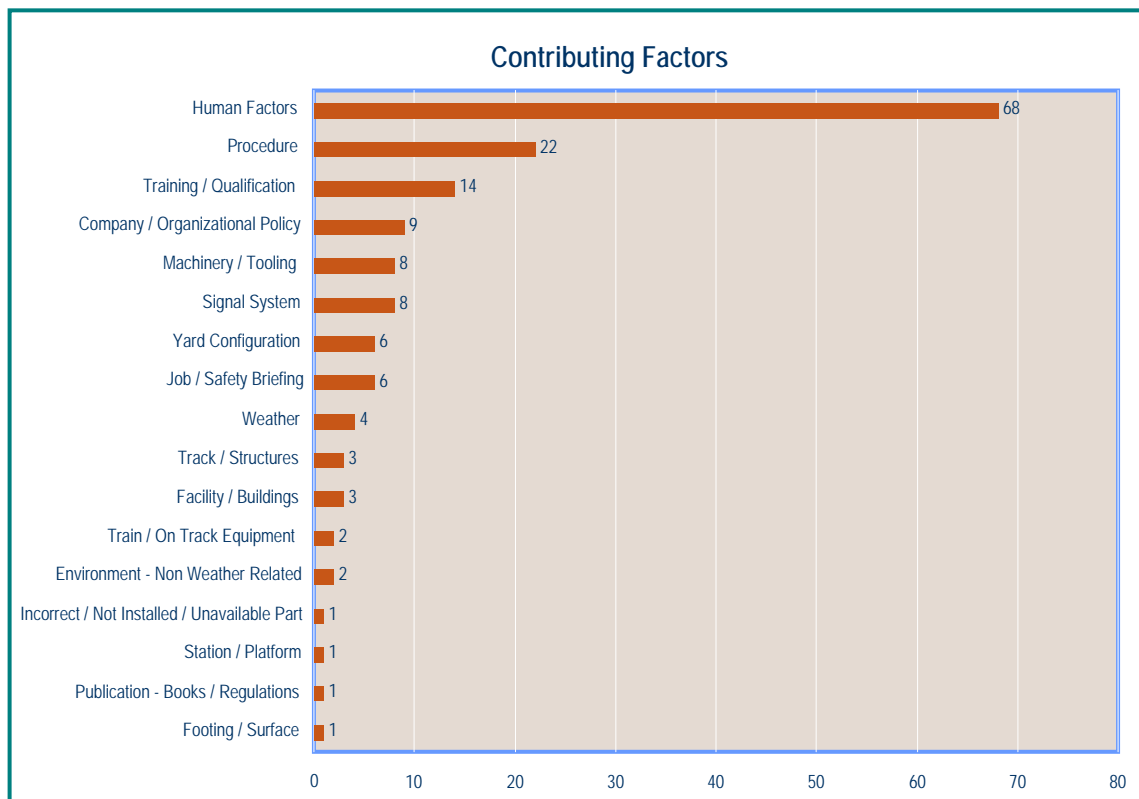
The Confidential Close Call Reporting System (C³RS) is an example of risk reduction efforts at Amtrak. The program has been operational in the East since February 1, 2011, and since February 22, 2011, in the West. C³RS is an FRA pilot project to improve operational safety practices. It is a voluntary partnership between the FRA, Amtrak, the Brotherhood of Locomotive Engineers and Trainmen (BLET), and the United Transportation Union (UTU). This pilot program covers yard movement, and target locations include Southamptton Yard in Boston; New Haven, CT Parcel G; Sunnyside Yard in Long Island City, NY.; Penn Coach Yard and Race Street Engine House in Philadelphia; Ivy City, Washington, D.C.; Miami; Los Angeles; Chicago; Seattle; and Oakland, Calif. Amtrak is working to expand the program in 2012 to include additional locations and a possible broader scope of coverage.

The purpose of the project is to improve the safety of railroad operations by providing a voluntary, confidential method of reporting close calls that might have otherwise gone unreported and/or resulted in discipline. A close call can be defined as a situation or incident that has the potential for more serious consequences. For reported close call events to remain anonymous, the National Aeronautics and Space Administration (NASA) provides third-party oversight of the program and serves as the contact and owner of information reported by Amtrak employees.

Amtrak’s East and West Peer Review Teams (PRTs), which include members from labor, management, and the FRA, had analyzed 100 reports as of December of 2011. Corrective actions developed by the PRTs are forwarded to the C³RS Support Team, consisting of a Superintendent of Operations from each division and co-chaired by the Transportation department Senior Director of Operation Practices and the EHS department Superintendent of Safety. The Support Team has begun receiving PRT recommendations for corrective action and is working on implementation. Statistics compiled by NASA on cases received to date show:



- The top two contributing factors in close calls are human factors and procedures, with the primary problem being attributed to human factors (see contributing factors chart below).
- The biggest anomaly has been in “encounter protection,” defined as “an encounter with a mechanism or device placed on the rail to protect employees, equipment, or track.” This definition includes, but is not limited to, blue signals and derail devices.
- Reporting locations have been most frequently from personnel in the locomotive cab, followed by adjacent to track/on ground; locomotive walkway/steps; train-car vestibule; train car; tower; vehicle; and, a shop location.



Other Initiatives—Industrial Hygiene

Locomotive Cab Noise-Monitoring Program

In 2011, the Industrial Hygiene group partnered with the Transportation department to develop and implement an FRA-required locomotive cab noise-monitoring program. As part of this multi-year project, Transportation created two new positions to conduct in-house noise monitoring and data analysis. The project goals are:



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- To identify employees whose locomotive cab noise exposures exceed 85 decibels (A-scale) and include them in Amtrak's hearing conservation program;
 - To identify and refer to the Mechanical department sources within an operating locomotive cab that generate comparatively high noise levels for investigation and potential repair or mitigation; and
 - To identify which route segments are noisier than others so that appropriate corrective actions—including the use of hearing protection—can be identified and implemented.

Personal noise monitoring for 135 locomotive engineers was completed in the second half of the year. Results have helped identify any high noise environments subject to an evaluation.

Electromagnetic Radiation Frequency Studies

An electromagnetic radiation frequency (EMF) study was performed this past year at three locations in and around Newark, NJ (at Dock Interlocking, Union Interlocking, and Location 177). The study was conducted at the request of Amtrak's Health Services and Medical groups. Survey results were measured against guidelines provided by a maker of an implantable cardioverter defibrillator (ICD) to determine if EMF levels might impact operation of the device.

Bloodborne Pathogens Exposure

The IH team participated in a Transportation department committee that is trialing the possibility of providing either multi-user or single-user sharps containers on trains for passenger disposal of these and other sharp devices that could cause employee injury. The pilot study is being conducted using single-user sharps containers on the *Auto Train*.

Asbestos Assessments and Asbestos Management Plans

Asbestos building assessment surveys and development of site asbestos management plans were completed at nine Amtrak locations by two outside contractors—Bureau Veritas North America, Inc., and URS Corporation. Sites selected included Mechanical facilities or back shops (and other buildings associated with the same property) in Albany, NY; Bear, DE.; Beech Grove, IN.; Brighton Park, IL.; Los Angeles; New Orleans; Sunnyside, NY.; and Wilmington, DE. One additional site, New York's Pennsylvania Station was also added to the list.



The assessments identify the presence of asbestos-containing building materials. Plans established requirements for renovations and set up signage and information sharing with facility employees.

Asbestos management plan rollouts were completed at eight locations, including four locations where asbestos assessments were completed in 2010. These sites included Mechanical facilities or back shops at Bear, DE,; Brighton Park, IL.; Chicago; Ivy City, Washington, D.C.; Penn Coach Yard, Philadelphia; New Orleans; Southampton (Boston); and Wilmington, DE.



IV. Customer Focus

Amtrak Strategic Goal: Advance customer service quality by responding to the wants, needs, and expectations of our customers in order to improve their experience and maximize passenger and partner satisfaction.

In 2011 efforts in the Environmental Health and Safety department contributed to Amtrak's strategic Customer Focus goal through a variety of Public Health programs.

Key accomplishments included:

- Drinking water initiatives that included a comprehensive drinking water monitoring program for passenger cars and an advanced backflow prevention program to prevent possible contamination of potable water supplies;
- Updated monitoring and control programs to assure that our pest control service is current with industry standards due to the emergence of bed bugs in the lodging and travel industries;
- Provided recurrent field updates and reviewed critical trends to help improve food safety on all trains;
- Participated in and coordinated Amtrak's flu vaccination program, through which approximately 3,000 employees were vaccinated free of charge.

Public Health Programs

Water Sampling Program

Amtrak is involved in several initiatives to meet federal guidelines for the safety of drinking water for our passengers and employees on Amtrak's fleet. Several initiatives are "beyond compliance" processes.

The first initiative—through an agreement with the U.S. Environmental Protection Agency (EPA) started in 1983—is Amtrak's Public Health drinking water sampling program. Each of the four Public Health managers draws potable water samples from at least 20 passenger cars and one hydrant every month. These samples are tested at EPA-certified laboratories, and results are based on three levels:



*Level 1—Heterotrophic plate counts of 5,000 colony-forming units per milliliter (cfu/ml) or above, constituting Amtrak’s internally designated action level. As indicated in the EPA *National Drinking Water Highlights* booklet (May 2001): “HPC has no health effects; it is an analytic method used to measure the variety of bacteria that are common in water. The lower the concentration of bacteria in drinking water, the better-maintained the water system is. HPC measures a range of bacteria that are naturally present in the environment.”*

Level 2—Presence of coliform bacteria (absent fecal coliform).

Level 3—Presence of fecal coliform, or presence of coliform bacteria on a resample.

FY11	Level 1 (HPC)	Level 2 (TCC)	Level 3 (FC)
4Q	77/267	4/267	0
3Q	62/260	1/260	0
2Q	47/238	3/238	1
1Q	62/267	3/267	1
TOTAL	248/1,032 (24%)	11/1,032 (1.1%)	2

Amtrak’s corporate goal of zero Level 3 (fecal coliform) failures was not achieved in Fiscal Year 2011. Reports of two positive fecal coliform samples were received from the laboratory. Both failed samples were drawn from trains watered in Sunnyside Yard, N.Y. While detailed follow-up inspections could not detect the exact cause, the cause may have been mishandling of water equipment. Subsequently, an intense hands-on training program was initiated for Sunnyside water handlers; water results vastly improved and no further fecal coliform issues were detected.

When the Public Health group was notified of the two failures, actions included immediately shutting off water service for the cars involved; removing the cars from service; draining and flushing water tanks; and taking follow-up samples. The cars were allowed to return to service only after notification from the testing laboratories that samples were satisfactory.

The Level 3 goal represents the most critical drinking water sampling goal, the Level 2 rate of 1.1 percent met the corporate goal of “less than 2 percent.” The 24 percent Level 1 rate, however, did not achieve the goal of “less than 23 percent,” and possible systemic issues continue to be investigated by the Public Health group.

The water tanks and lines of all cars that failed any level were drained and flushed using a 100 parts per million (ppm) bleach solution and one-hour hold time at the end of the trip. Additionally, a subsequent lab sample was taken from all Level 2 cars after the flush to assure that coliform bacteria were no longer present in the system.



Administrative Order of Consent (AOC)

During Fiscal Year 2011, the EPA finalized regulations and operating agreements with many U.S. commercial airlines concerning the application of new drinking water regulations and requirements. Amtrak has been under an Operations and Maintenance (O&M) agreement with EPA since 1993. Amtrak's drinking water sampling program and its O&M programs have been recognized by the EPA as a model for other transportation companies to consider and was used by the EPA as a model in developing the new airline regulations.

Amtrak was contacted by EPA in late FY11 and began informal discussions on drafting a new agreement, which will be based on the airline regulations and Amtrak's history with its O&M agreement.

Backflow Prevention Testing Program

The U.S. Food and Drug Administration (FDA) and Amtrak are operating in agreement on a program of in-house testing of all backflow prevention measures at Amtrak Watering Point Facilities (where Amtrak passenger cars obtain potable water).

Deployment of Phase 1 includes completing a Cross-Connection Program (CCP) at all major watering points. Although Phase 1 was expected to be completed in FY11, Phase 1 is now scheduled for completion in FY12.

Flu Initiative

The Amtrak Pandemic Flu Committee meets regularly and tracks national and worldwide flu trends in order to be able to plan accordingly for Amtrak. The committee, for the third consecutive year, was responsible for coordinating Amtrak's seasonal flu vaccination program, in which approximately 3,000 employees received vaccinations in the fall free of charge.

Integrated Pest Management

Amtrak and Copesan, the company's national pest management partner, continue to work together to provide the integrated pest management program. The success of the program has been due to strict adherence to the program's specifications and inspection schedules, with national standards.



The integrated pest management program is designed to maintain a pest-free environment at inspection and servicing stations; commissaries; maintenance facilities; on rail equipment; and at maintenance-of-way locations along the Northeast Corridor and the rest of the Amtrak system.

During 2011, the Amtrak/Copesan audit team, in conjunction with the Public Health group and the Mechanical Department Standards and Compliance group, supported major Amtrak facilities throughout the system by reviewing site plans and program requirements, as well as by fostering good communication between local management and Copesan partners.

Additionally, due to the continued emergence of bed bugs and other biting insects in the lodging and transportation industries, the Amtrak/Copesan management team developed and implemented proactive strategies for inspection and treatment for insects, as well as a monitoring protocol designed to mitigate the risks associated with these pests. The Amtrak/Copesan team is also continually evaluating new greener technologies such as monitors, K-9 biting insect inspections and heat treatments of rail cars.



V. Mobility and Connectivity

Amtrak Strategic Goal: Improve national mobility and connectivity by growing Amtrak's business through new partnerships, routes, and frequencies to increase ridership system-wide.

In 2011 efforts such as partnering with state agencies on various projects contributed to this strategic goal. For example, Amtrak worked closely with the Oklahoma Department of Transportation on a recently completed trial of a biodiesel fuel blend on a passenger rail route. Amtrak continues to work on reducing energy usage through route efficiencies and locomotive practices.

Amtrak Biodiesel Inter-City Passenger Rail Trial

In May 2011, Amtrak completed the nation's first-ever field trial of a 20 percent renewable biodiesel fuel blend to power a daily interstate passenger train between Oklahoma City, OK., and Fort Worth, TX. Amtrak received a \$274,000 grant from the FRA to carry out the research project in partnership with the Oklahoma and Texas Departments of Transportation on the daily *Heartland Flyer* train operated by Amtrak with state support from both Oklahoma and Texas.

The trial's objective was to evaluate the use of B20 (20 percent biodiesel and 80 percent ultra-low sulfur diesel) as an alternative fuel for locomotives and to assess engine performance and emissions while the fuel was being used. The "biodiesel source" (B100) for the B20 blend was produced solely from Texas native feedstock (beef tallow). Before and during the field trial, the fuel was tested for metals, fuel and water, oxidation, nitration, soot, sulfate, and other parameters using American Society for Testing and Materials (ASTM) test methods. Emissions testing during the trial included gaseous and particulate matter sampling, as well as evaluation of smoke opacity. Fuel consumption and engine performance were also tested.

More than 150,000 equipment miles were logged and approximately 175,000 gallons of B20 fuel were used during 331 round-trips. More than 35,000 gallons (20 percent by volume) of total fuel used during the revenue service trial were produced from the non-petroleum, renewable source of fuel (beef tallow).

Results included:

- On-time performance was not adversely impacted;
- Fuel reliably met appropriate ASTM specifications;
- No loss in horsepower identified using B20;



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- Comparable fuel consumption to a locomotive using diesel fuel meeting EPA specifications for locomotive emissions test fuel;
 - No statistical difference in emission levels compared to EPA locomotive test fuel, with the exception of NOx; and
 - Condition of engine parts was determined to be comparable to normal conditions as experienced on other passenger locomotive operations.

Fuel Usage Reduction Initiatives

Amtrak has set a goal of reducing fuel consumption by one percent a year for the next five years. By Fiscal Year 2015, fuel levels for revenue trains are planned to be at or below 57.8 million gallons. Focusing on route efficiencies and locomotive practices is key to achieving these goals.

The Transportation department's efforts to reduce fuel consumption include a wide range of activities:

- Providing locomotive engineers in the field with techniques for train handling, as well as simulator training, to improve efficiencies and conserve fuel;
- Tracking the use of dynamic braking; working toward an incentive for engineers to use this technique;
- Examining the potential for trip optimizer technologies and locomotive cruise control for certain locomotives;
- Making additional upgrades to fuel management systems to improve accuracy and tracking of fuel deliveries;
- Promoting the use of 480V ground power at layover locations rather than running the diesel engines when trains remain on power during layovers; and
- Working to ensure locomotives are shutting down within an hour of arriving at their destination and not starting until an hour before departure.



Grants for GenSet Locomotives

Using state and federal grant programs, Amtrak has been able to upgrade its switch locomotive fleet, which averages more than 60 years of age.

State and federal grants have been available in certain areas under diesel emission reduction or congestion mitigation programs. In California, for example, Amtrak has received grants from the South Coast Air Quality Management District (AQMD) and the Bay Area AQMD through the Carl Moyer Program to acquire GenSet switch locomotives in Los Angeles and Oakland. In 2011, Amtrak was also awarded a grant from the Illinois Department of Transportation for two GenSets for Chicago.

GenSet technology replaces large diesel engines and generators used in older switch locomotives with much smaller diesel engines and generators that are similar to off-road diesel truck engines and are EPA Tier III off-road/Tier II railroad compliant. Advanced computer technology allows for precise control of the engines, starting and stopping only as their power is needed. While the outward appearance of the GenSet is similar to existing older-technology locomotives, fuel consumption and exhaust emissions are significantly reduced by using the smaller engines only when needed.

An EPA-funded grant was also awarded to the Council of Governments (COG) representing Virginia, Maryland, and the District of Columbia for re-powering two switch engines in Ivy City. This grant application was submitted by COG, Amtrak and the District of Columbia Local of the Brotherhood of Locomotive Engineers and Trainmen (BLET).



Photo —GenSet Switch Engine



Increasing Mobility Through Intermodal Connections

Airport Connections

Amtrak intercity trains provide direct connections to several airports in the United States. Along the densely populated Northeast Corridor, Amtrak serves the BWI Thurgood Marshall Airport Station (serving Baltimore and Washington, D.C.) and the Newark Liberty International Airport Station (serving the New York metropolitan area). Both airport stations are also served by frequent commuter train services.

Amtrak has a “codeshare” agreement with Continental Airlines that allows airline passengers at Newark to connect with Amtrak trains between Newark and Philadelphia (approximately 80 miles apart), reducing the need for short-haul feeder flights.

Outside the Northeast, Amtrak has airport stations in Milwaukee and in Burbank, CA. Many other airports in the United States have local rail connections without intercity train service. Travelers can sometimes make a connection from the Amtrak station to the airport via mass transportation or local rail lines. Given that several Amtrak routes pass through rural areas with very few transportation options, the connectivity provided by the intercity train to a metropolitan airport via a mass transit connection is often the only public transportation route to an airport for a significant portion of the population.



VI. Environment and Energy

Amtrak Strategic Goal: Contribute to the nation's environmental health by attracting automobile and air travelers to trains, while improving Amtrak's efficiency and reducing transportation-related carbon emissions and fossil fuel consumption.

Energy Reduction Goal

For the first time, Amtrak established specific measures for energy reduction in the Amtrak Corporate Strategy, starting from the baseline year of FY10 and extending through FY15. Two specific measures were identified:

- Increase total seat miles per kilowatt-hour of "electric traction power" (a measure of the efficiency of trains powered by electricity); and
- Decrease total electricity consumption at facilities and stations.

Improving Energy Efficiency in Facilities

The Amtrak Utilities Management group conducted energy audits at 15 of the company's largest facilities over the course of two years. The energy audits confirmed that lighting upgrades would be the most effective way to reduce energy in multiple facilities due to the type and number of lights and their 24/7 operation.

Amtrak embarked on a two-year lighting retrofit project at the 15 facilities. The implementation team chose upgrades that showed the best paybacks, focusing on replacing high-intensity discharge and older technology T-12 fluorescent fixtures with induction and T-5 and T-8 fluorescent fixtures to get the most significant energy savings possible. A total of 7,000 lighting fixtures were replaced with fixtures that are approximately 40 percent more efficient. In addition to energy savings, the lighting upgrades provide the facilities with brighter, better-quality light. The new lamps also last approximately two times longer than the previous fixtures, reducing annual costs for maintenance and service. The financial results are summarized below.

Totals for Two-Year Lighting Project

Cost	\$3.2 million
Annual Savings	\$1.2 million and 12 million kwh
Payback	Less than four years



Another significant energy project completed in 2011 was replacement of 30-year old central steam plant boilers serving Chicago Union Station and the Chicago Maintenance Yard. The central plant was subject to low overall boiler efficiency and leaks from underground distribution pipes. Amtrak first installed a separate hot water system for dishwashing so that the natural gas-fired steam plant could be shut down during the summer months. Amtrak then installed more energy-efficient point-of-use heating systems for several buildings and a more energy-efficient train de-icing system so that the central steam plant could be fully decommissioned.

The Chicago central steam plant was officially decommissioned in May of 2011, and the new de-icing boilers and heaters went on line in November and December of 2011. With these measures, Amtrak has reduced natural gas usage by 3.65 therms and eliminated 42.7 million pounds of carbon dioxide emissions, with a projected savings of \$2.9 million annually.

An energy audit at Amtrak's Beech Grove Shops in Indiana identified that the building automation control system, which controls the operation of the 27 large heaters, was not functioning. The Utilities Management group funded and organized the project to repair the system. As a result, the Beech Grove shops reduced natural gas use by 396,000 therms in 2011, compared to 2010, and saved \$551,000 in the year after the repairs.

Environmental Audit Goal

As part of the Environment and Energy goal in Amtrak's Strategic Plan, an Audit Compliance Score of 83.5 has been established as a five-year performance target for FY15. The Audit Compliance Score goal establishes a standardized environmental benchmark, which serves as a tool to gauge the effectiveness of facility programs and practices in achieving environmental compliance. The benchmark is used by facilities and internal departments to compare their individual environmental audit results to previous and subsequent audits. By comparing results, a facility can gauge improvement or program deterioration. The current Audit Compliance Score goal of 82 will be strengthened as Amtrak continues to strive for continuous improvement and for the integration of sound environmental principles and practices into all our business decisions and operations.

During FY11, the average Audit Compliance Score was 81, which was below the corporate goal of 82 for the fiscal year. The Environmental group conducted a "root cause analysis initiative" to review practices, policies, and processes to identify the cause for systemic findings of non-conformance.



As a result of the analysis, the Environmental group took the following actions to enhance facility Environmental Management Programs, ultimately working towards achieving our Audit Compliance Score goal:

- Proposed environmental performance goals for managers in operating departments.
- Increased direct involvement of departments at a facility as part of the Environmental Audit Process, and required root cause analysis for repeated findings noted during audits.
- Updated training of Responsible Amtrak Officials and other facility managers to emphasize accountability and the involvement of multiple departments.
- Instituted training classes and other measures to improve skills and resources of coordinators who provide environmental training to employees.
- Improved environmental communications to multiple departments, including environmental awareness training; creation of a webinar on environmental review of new projects; and an environmental component for railroad training and the associated manual.

Recycling Programs

Onboard Recycling

During 2011, Amtrak continued working with onboard service personnel to communicate to our passengers the availability of recycling receptacles that were installed in 2010. To better understand the capacity needed on board for trash and recycling, Amtrak employees conducted a survey of trash and recyclable items removed from train endpoints in Seattle, Chicago, Boston, and New York. A total of 80 trains were inspected, including Amfleet, Heritage, Talgo, and Superliner equipment. Both short- and long-distance trains were incorporated, including *Regional, Empire Builder, Silver Star, Lakeshore Limited, and Cascade* routes. More than 226 coaches, 31 sleepers, 28 café cars, 19 diner cars, and eight lounges were included in the survey.

During the study, Amtrak employees observed a trash/recycling mix ranging from 25 to 75 percent on long-distance trains to roughly 50 percent on short-distance and corridor trains. On the short-distance and Northeast Corridor trains, Amtrak staff found that the ratio resulted from either insufficient recycling capacity or unclear labeling, while on the long-distance trains the wider variance appeared to result from a low capacity for both trash and recycling.



As a result of these findings, Amtrak is actively exploring ways to increase capacity, including adding additional removal stops; reducing the packaging of food service items sold on board; installing more permanent receptacles; or using a commingled waste stream. Through these efforts it is anticipated that Amtrak will be able to achieve a higher rate of onboard recycling, while reducing the amount of waste sent to landfills.

Industrial Recycling

In 2011, the Wilmington Maintenance Facility began a program to recycle damaged shipping pallets that could not be reused. Amtrak partnered with the nearby Wilmington Organic Recycling Center—a local compost manufacturer—where pallets are mechanically broken down and combined with other organic materials. By recycling these pallets, Amtrak has decreased trash disposal costs at the facility and reduced the amount of landfill waste. Ultimately, the compost will be used by home gardeners, nurseries, and local farms to replenish soil nutrients. In three months, 12 tons of pallets were sent to the composting facility from the Wilmington Shops. Amounts of all industrial materials recycled or composted during 2011 are reported in the Metrics section.

Climate Initiatives

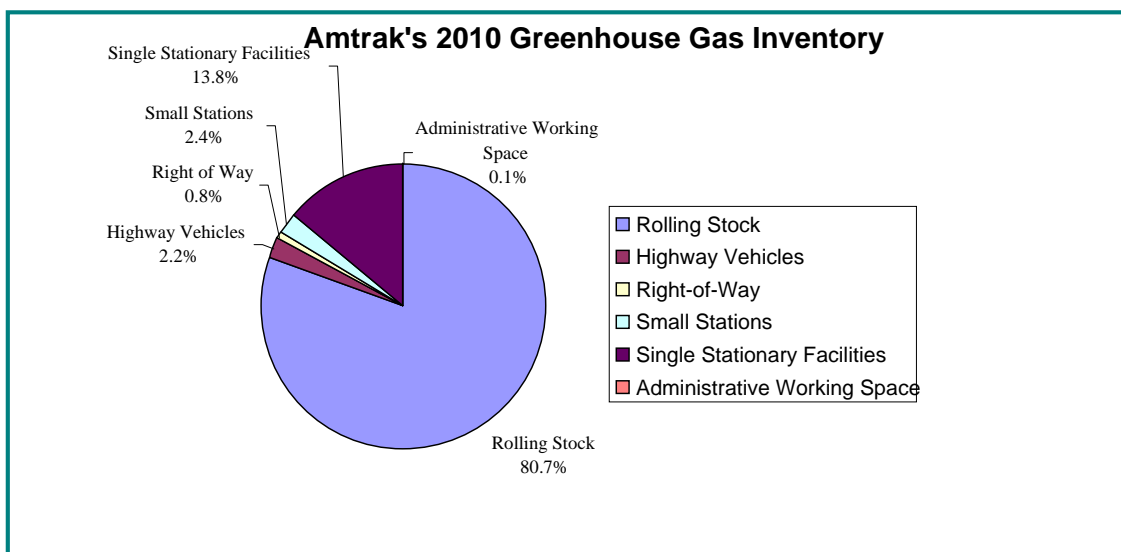
Greenhouse Gas Inventory

Amtrak is a member of The Climate Registry (TCR), a not-for-profit organization founded to set consistent and transparent standards for businesses and governments to calculate, verify, and publicly report their greenhouse gas (GHG) emissions. As a member, Amtrak has committed to comprehensive reporting standards for recording and managing greenhouse gas emissions throughout its system, including those from diesel and electric locomotives, passenger rail cars, maintenance equipment, stations, offices, and other facilities.

The first official Amtrak GHG inventory was prepared in 2011 for calendar year 2010 emissions and underwent a rigorous verification process by a third party. Total Amtrak emissions for the first reporting year were 1.17 million metric tons of carbon dioxide equivalents (CO₂e). The operation of rolling stock contributes a significant portion of the emissions (approximately 81 percent). The inventory was developed using six different “facility groups.” A description of each is included below, along with a chart showing the approximate percentage each group contributes to overall emissions.



Facility Group	Description
FG 1 - Rolling Stock	Includes diesel/electric locomotives and passenger cars.
FG 2 – Highway Vehicles	Includes leased General Services Administration (GSA) highway vehicles and all other highway vehicles owned or leased by Amtrak.
FG 3 - Right-of-Way	Includes all switches, switch heaters, signals, crossings, lights, towers, and any other device on the right-of-way.
	Includes paralleling/switching equipment and substations that are part of the catenary system.
	Includes 10 movable bridges along the Northeast Corridor.
FG 4 - Small Stations	Includes stations owned by Amtrak or where Amtrak has a presence as a lessee, and where minor or no maintenance occurs.
FG 5 – Single Stationary Facilities	Includes facilities not addressed in other Facility Groups including railyards, mechanical maintenance facilities, maintenance-of-way bases, backshops, and large stations.
FG 6 – Administrative Working Space	Includes all office space not attached to a yard, station, or other Amtrak facility.



The Amtrak inventory information has been approved by TCR, and is now available to the public through the TCR website. The summary of emissions data can be found at: <https://www.crisreport.org/web/quest/analysis-and-reports> (see the Entity Emissions Summary).



The Climate Registry has designated Amtrak as “Climate Registered” as indicated in the logo below.



Chicago Climate Exchange

In 2003, Amtrak joined the Chicago Climate Exchange (CCX) as a charter member and committed to reduce greenhouse gas emissions from locomotive diesel fuel by six percent between 2003 and 2010, using an average of the baseline years 1998-2001. The CCX voluntary commitment was the largest reduction commitment in North America. The commitment consisted of two phases: Phase 1 occurred between 2003 and 2006, and required a one percent reduction in emissions per year; Phase 2 was between 2007 and 2010, and required a 0.5 percent reduction in emissions per year.

The original baseline was adjusted between 2003 and 2004 for the removal of the Massachusetts Bay Transportation Authority (MBTA) from Amtrak service. The table below, starting with 2004, shows the Amtrak commitment and the actual emissions for each year between 2004 and 2010.

Calendar Year	Emissions Commitment in Metric Tons of CO ₂ (Actual Emissions in Parentheses)
2004	810,000 (actual: 731,400)
2005	801,700 (actual: 723,100)
2006	793,400 (actual: 668,200)
2007	791,400 (actual: 678,400)
2008	789,300 (actual: 669,600)
2009	785,200 (actual: 656,100)
2010	776,900 (actual: 691,700)

CCX verified each annual report by having the Financial Industry Regulatory Authority (FINRA) audit fuel invoices and other records. Amtrak met the interim CCX reduction requirements and exceeded the eight-year overall reduction goal, with the last verification completed in 2011. Amtrak will maintain its membership with CCX through 2012 to retain our reduction credits, which may be used for other programs.



Carbonfund.org

Amtrak partnered with Carbonfund.org in 2007 to offer passengers the opportunity to purchase carbon offsets for their travel on Amtrak. Carbonfund.org is a leading carbon reduction and offset not-for-profit organization that educates the public about climate issues, and makes it easy and affordable for individuals, businesses, and organizations to reduce their climate impact. Through the Amtrak partnership with Carbonfund.org, Amtrak passengers offset more than 1,154,203 miles of rail travel, representing more than 462,500 pounds of greenhouse gases in calendar year 2011.

Climate Counts

In 2010, Amtrak became a member of the Climate Counts Industry Innovators (i2) program. Climate Counts is a not-for-profit organization that provides an independent and verifiable assessment of a company's commitment to reduce its impact on the environment and climate change. The group uses 22 specific criteria to produce a scorecard to rate how companies have measured their carbon footprint; reduced their impact on climate change; supported effective climate legislation; and publicly disclosed their climate actions in a clear and comprehensive manner.

The Climate Counts scoring system is based on 100 points. Amtrak's scores for efforts over the past three calendar years were as follows:

2009: 62 points

2010: 71 points

2011: 72 points

Through our continued efforts in the area of climate change, Amtrak's score has been steadily increasing. Amtrak's score has consistently been one of the highest in the transportation sector compared to airlines evaluated by the program.



VII. Financial and Organizational Excellence

Amtrak Strategic Goal: Attain a standard of organizational excellence by aligning our products, services, processes, and culture with stakeholder expectations to improve financial performance and overall business results.

Department Realignment

In a reorganization change at Amtrak, the EHS department added two functional groups in October of 2011 with the Medical and Health Services groups joining the department. The functions of the two new groups mesh well with the existing EHS functions, as demonstrated in a number of joint projects that have been performed over the past several years.

The Medical group, headed by Dr. Paul McCausland, provides services in the medical area, including review of employee physical examinations; tracking the Medical Leave of Absence and Short-term Disability programs; review and approval of Fitness of Duty examinations; and medical review of respiration examinations and fitness.

The Health Services group is headed by Dr. Malva Reid and performs work in such areas as Employee Assistance; drug and alcohol testing; Wellness Programs; audiometric testing; and the GO Team (emergency response to train accidents).

Ridership Statistics

Ridership improved for the second straight year to reach an all-time high of 30.2 million passenger trips. Amtrak continues to grow its business through new partnerships, routes, and frequencies to increase ridership system-wide.

Year	Ridership – Passenger Trips (in millions)
FY 2005	24.0
FY 2006	24.3
FY 2007	25.8
FY 2008	28.7
FY 2009	27.2
FY 2010	28.7
FY 2011	30.2



Remediation Projects

Sunnyside Yard Reclaimed Use of Property

For many years, Sunnyside Yard (Queens, NY) has been undergoing remediation work by the EHS department, as required by the New York State Department of Environmental Conservation (NYS DEC). One area that required extensive work was the old engine house/oil house area. These structures, along with many others, were removed. Underground storage tanks were properly closed, and contaminated soil was excavated and hauled to a landfill for proper disposal. The area was then graded and topped with stone and compacted to provide a drivable surface.

Out of a total of 6.17 acres included in this phase of the remediation, one small area of less than one acre will still be fenced off for future remediation work. More than five acres have been returned to the Mechanical and Engineering divisions for parking, roadway, and “lay down” areas for projects.

This project returned previously unusable space to railroad operations and provided a significant aesthetic benefit to Sunnyside Yard and its employees. Photos taken before and after the remediation work clearly illustrate the improvements. Photos 1 and 2 were taken before work commenced, Photo 3 after the completion of the work.



Photo 1—Sunnyside Yard, Queens, NY (before remediation)



Photo 2—Sunnyside Yard, Queens, NY (before remediation)

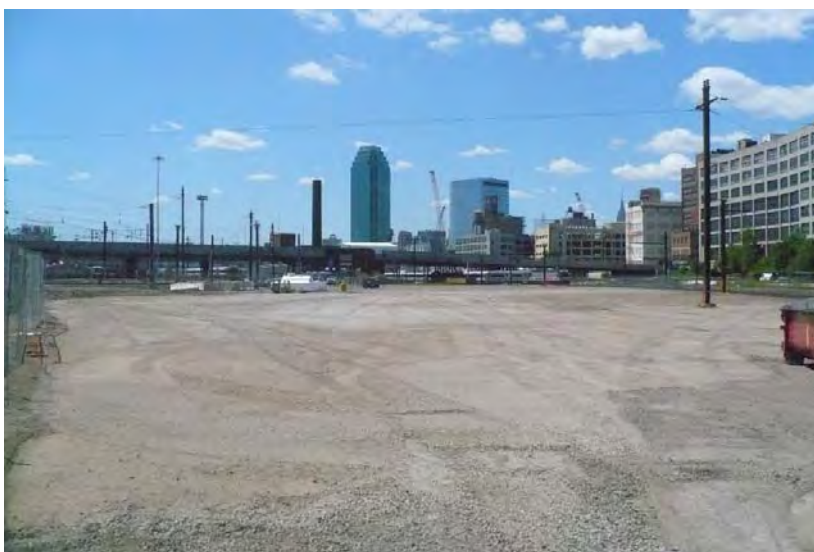


Photo 3—Sunnyside Yard, Queens, NY (after remediation)

Chicago Remediation Project

For three years, a Multi-phase Extraction System has been removing contaminated groundwater from an area where fuel tanks have historically operated at Amtrak's Chicago Yards. As of the end of 2011, more than 860,000 gallons of contaminated groundwater containing nearly 2,600 gallons of free product (diesel fuel) had been removed. The amount of product being removed has decreased significantly over time, and Amtrak and its consultant (AMEC) are working with the Illinois EPA to reduce the scope of the project.



Risk-Reduction Projects

Beech Grove Sewer Separation Project

Amtrak constructed a separate storm water sewer system to channel rainwater and snow melt away from the City of Beech Grove (IN) sanitary sewer. In the past, storm water combined with contaminated wastewater generated by facility operations and drained into an industrial sewer system. This system flowed to an onsite wastewater treatment system, which then discharged the treated water to the city's sanitary sewer system.

The new storm water sewer system collects rainwater and snow melt runoff and drains it to an 800,000-gallon retention pond where it can be inspected for signs of contamination before being discharged to a nearby creek. The new system is beneficial to the city in that it reduces the volume of wastewater going to its sewers and treatment plant during wet weather.

In conjunction with the sewer construction project, aging sewers were relined; two transformers containing PCB dielectric fluid were replaced; and electrical systems that interfered with the new sewer lines were replaced and rerouted.



Photo 1—Beech Grove Sewer Project, PCB transformer removal



Photo 2—Beech Grove Sewer Project, retention pond construction



Photo 3—Beech Grove Sewer Project, retention pond construction



Wilmington Maintenance Facility Transfer Table

A sediment control project for the transfer table at the Wilmington (DE) Maintenance Facility was completed in September of 2011 in support of the facility Pollution Minimization Plan (PMP) with the Delaware River Basin Commission (DRBC). The project included the removal of soil; reconstruction of the storm drains; and installation of stone over geotextile fabric. The project as completed will address the erosion of historic PCB-impacted soils from the approximate three-quarter acre table to the adjacent storm water outfall.



Photo 1—Wilmington Maintenance Facility Project, completed transfer table



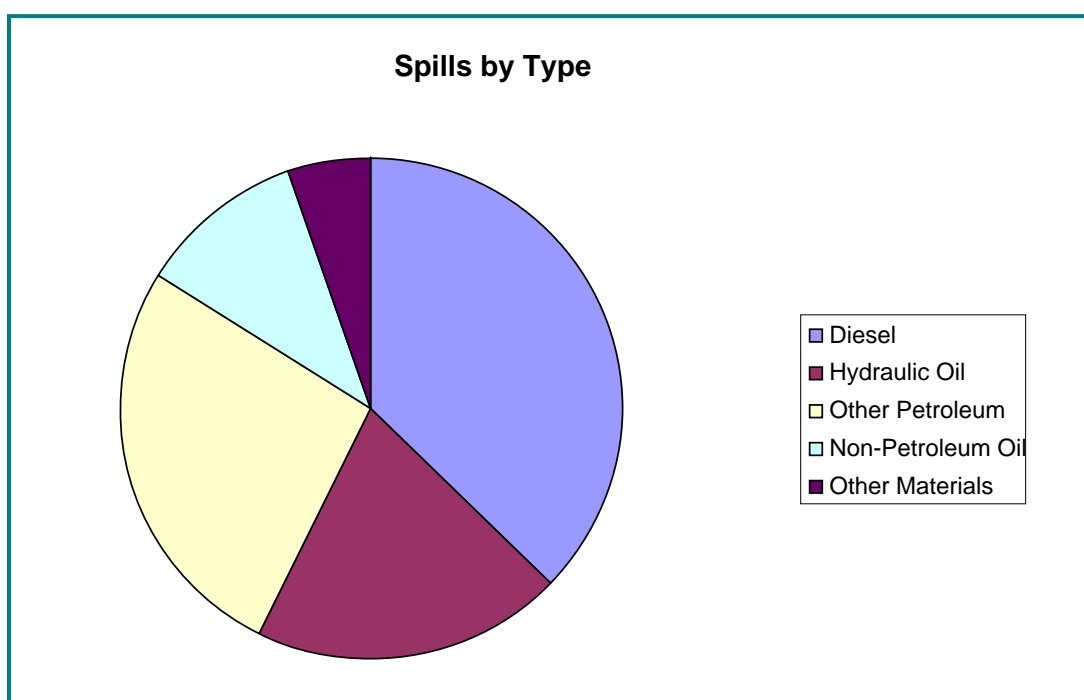
VIII. Metrics

Environmental Incidents and Spills

In 2011, Amtrak recorded a total of 75 environmental incidents involving a spill that required corrective action. Of these, 31 were reportable to federal, state or local environmental agencies. A total of 52 spills occurred at fixed facilities (such as maintenance shops, stations, or maintenance-of-way bases), whereas 23 occurred along the railroad right-of-way.

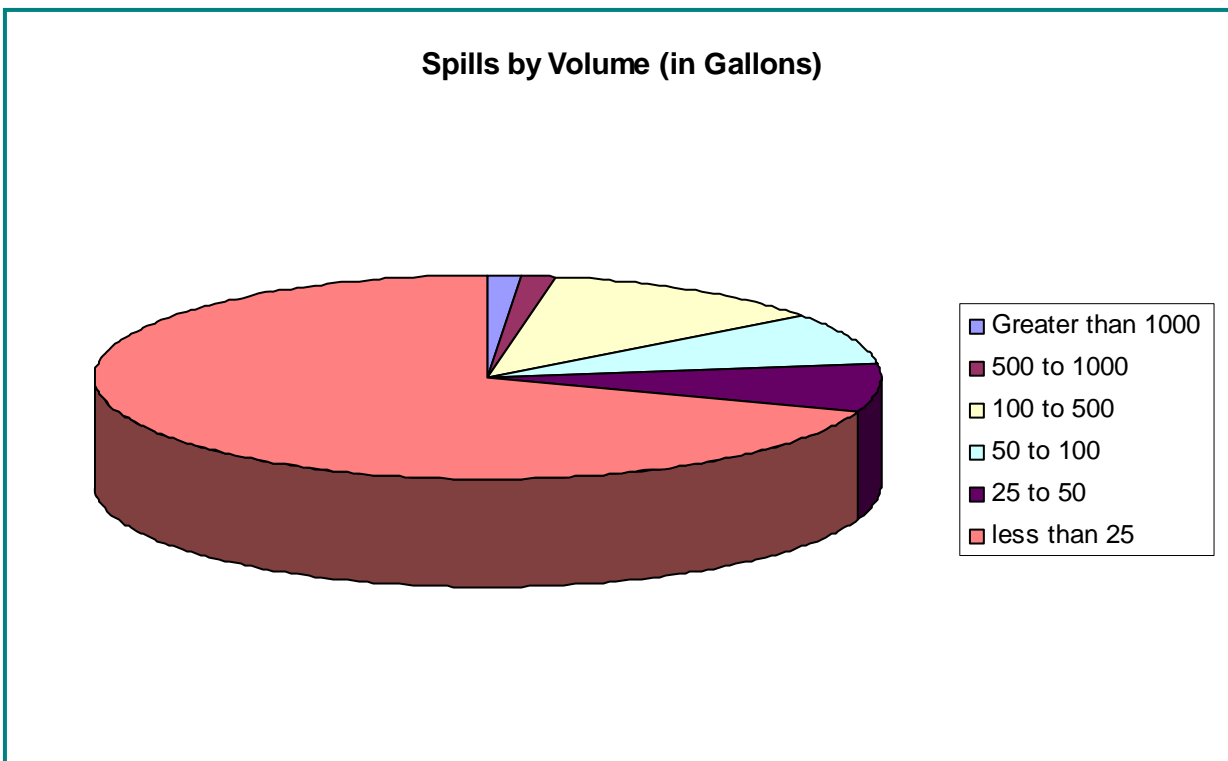
Of the 75 incidents, there were 43 spills of petroleum products; 8 spills of vegetable-based oils; and 20 spills of other oils. Four spills involved non-oily materials such as sulfuric acid or acidic or caustic cleaning fluids.

A breakdown of types of spills recorded in 2011 is shown in the chart below. Similar to previous years, the majority of spills (57 percent) involved petroleum products.





The majority of spills that occurred in 2011 (69 percent) were small spills of less than 25 gallons, as illustrated in the chart below.



Recycling Statistics

Amtrak mechanical and engineering facilities recycle many industrial materials that are generated through train and track repair and routine maintenance. These include steel parts, such as wheels and axles; scrap steel; other metals (such as brass and aluminum); and other materials generated from train repairs, such as polycarbonate windows, mattress foam, and textiles. In the past year, the Wilmington Maintenance Facility also began sending damaged wood pallets to a local composting facility for reuse.

Amtrak's offices, stations, crew bases, shops, and maintenance facilities also recycled non-industrial materials, including paper, cardboard, and containers made from plastic, glass, and aluminum. Additionally, newspapers, magazines, and beverage containers are collected from trains for recycling at designated stops and turnaround points.

In 2011, the Environmental Information System was deployed for reporting of recycled materials, both industrial and non-industrial. Recycling amounts of non-industrial materials have increased over 2010, partly due to increased reporting, but also attributable to increased recycling efforts at a number of facilities. The tables below show the total amount of materials recycled in 2011.



AMTRAK RECYCLED MATERIALS 2011

Industrial Materials Final Totals

Steel Parts and Equipment	2,855	tons
Scrap Metal/Steel	4,625	tons
Cable/Wire	73	tons
Other metals (copper, brass, aluminum)	379	tons
Batteries (lead-acid)	44	tons
Mattress Foam	4.7	tons
Windows	17	tons
Plastic Drums	7.8	tons
Wood Scrap/Pallets	91	tons
Used Oil	223,806	gallons

Non-Industrial Materials

Commingled Recycling*	1,462	tons
Cardboard	163	tons
Office Paper	149	tons
Mixed Paper	132	tons

**Includes commingled plastic, aluminum, glass, paper, and cardboard collected at Amtrak facilities, including materials collected in the onboard recycling program.
Calendar year data, January 1 through December 31*

Injuries and Illnesses

The Federal Railroad Administration (FRA) currently conducts an audit of injury/illness cases and rail equipment/grade-crossing incidents every two years.

The number of FRA-reportable injuries in Fiscal Year 2011 increased compared to FY10. System-wide, the number of FRA-reportable injuries was 722 in FY11, an increase of 18 percent from the 608 in FY10.

The use of the FRA Safety Injury and Illness Ratio has been eliminated as a component when determining company and department goals. With the implementation of the *Safe-2-Safer* program, there is more recognition of the importance of workplace safety issues and use of superior leading metrics such as number of safety observations per employee.



Audits

Safety Audit Program

The Safety Audit Program evaluates and reports on the state of safety compliance and conformance with various regulatory agency rules, as well as with Amtrak procedures and policies. In many cases, a safety practice is simply part of a routine operation or preventive task. The Safety Audit Program is not designed to perform detailed evaluations on all maintenance, operations, and functional tasks that include safety elements, but it is aimed primarily at those tasks regularly performed. The Audit Program is designed to reduce the risk of worker injury, avoid potential regulatory intervention, and promote a safer workplace.

While the basic focus of the Audit Program is on safety issues, including industrial hygiene, from time to time there may be overlap into environmental and public health areas. Issues in these categories are addressed in consultation with Amtrak's Environmental and/or Public Health groups.

The Safety Audit Program covers the operations and activities within the areas listed below and is not restricted to any particular department. These can include owned and leased facilities, both on and off Amtrak property. Vendor and contractor operations are also covered within the audit scope. The Audit Program can include, but is not limited to:

- Buildings, structures, and facilities
- Maintenance shops
- Maintenance-of-Way bases
- Maintenance-of-Way work sites
- Warehouse and distribution operations
- Commercial and non-commercial motor vehicles and drivers
- Equipment and equipment operators (non-rail)
- Baggage areas
- Construction sites
- Offices, warehouses, and storage areas
- Train movements within mechanical facilities
- Yard and station operations (non-train movement)
- Training courses (content, delivery, and documentation)
- System Safety Plan
- Accident and injury reporting



Safety Audit Metrics Fiscal Year 2011

Total number of facilities audited:	25
Total number of process audits:	4

Environmental Audit and Assessment Program

During Fiscal Year 2011 (October 2010 through September 2011), 22 environmental compliance audits were performed as part of the Amtrak Environmental Management System (EMS). The average EMS score for FY11 was 81.0, which is slightly below the corporate goal of 82. The environmental audit program measures performance against regulatory and management standards; reports findings of non-conformance; and devises and implements corrective action plans (CAP). The audit program currently includes 30 large and medium facilities that are audited on a biennial basis unless an unacceptable score is received. In that case, a follow-up audit may be conducted the following year.

During FY11, 56 small facility assessments were performed as part of the EMS. This component of the program was formerly known as the Facility Assessment Compliance Evaluation (FACE) program. These assessments are designed to assess facilities and operations that present a lower environmental risk than sites included in the Audit Program, and they utilize protocols designed to assess basic compliance. As with the environmental audits, these assessments require the facility's Responsible Amtrak Official (RAO) to develop a corrective action plan and provide regular reports on the CAP until all findings are closed.

To assist facilities with compliance activities, two Environmental Flash notifications were issued during FY11:

- Environmental Flash EMS-EF-017 specified data entry requirements for the Environmental Information System.
- Environmental Flash EMS-EF-018 provided information regarding proper management of refrigerant recovery programs.

The Amtrak Strategic Plan for FY11-15 sets a goal of improving audit scores by 1.5 percent per year over five years to achieve an average environmental compliance audit score of 83.5 in FY15. The target corporate average EMS audit score for FY12 is 82.



Public Health Compliance Inspections

Based on three consecutive years of meeting or exceeding the Corporate Goal, the EHS department increased the goal for percentage of inspections rated Satisfactory for all food car, commissary, and watering point inspections conducted by the Public Health group. The new goal of 92 percent for FY11 was not met.

The results from all three areas were at 89 percent, below the 92 percent goal for the fiscal year. The Public Health group worked closely with the various departments to focus on the leading trends of critical violations, particularly on food cars. The trends of each type of critical violation were addressed during each monthly Division Sanitation Task Force teleconference.

Environmental Enforcement Results

Amtrak received no environmental management program fines as a result of agency inspections in 2011.



IX. Awards and Recognition

Amtrak President's Service and Safety Awards

The Amtrak President's Service and Safety Awards program is the highest recognition given to Amtrak employees by the corporation. The program is designed to honor employees who perform far beyond the expected duties and responsibilities of their jobs and who make outstanding contributions to improve the efficiency, economy, safety, and service of Amtrak's operations while embracing the values of the corporation.

Safety Achievement

Edward C. Hobbs, Passenger Engineer, Transportation
Ft. Worth, TX

Tina Motley, Assistant Agent, Transportation
Richmond, VA

Safety Committee of the Year

Network Group, Mechanical Department, Southern Division
-Nancy Allen, Coach Cleaner
-Melvin "Tommy" Farr, Master Mechanic
-Patrick Keough, Foreman II
-Gable Leblanc, Environmental Specialist (retired)
-Dennis Overvold, General Foreman III
-Brian Rossin, Carman

Environmental Achievement

Dan M. Valley, District Manager, Transportation Department
Minneapolis/St. Paul, MN

Environmental Organization of the Year

Southern Division Mechanical Department



Association of American Railroads Environmental Awards

These awards recognize an individual railroad employee who has demonstrated outstanding performance in the areas of environmental awareness and responsibility during the award year.

2010 Professional Environmental Excellence Award (Amtrak Nominee)

Wade Smith, Senior Environmental Coordinator
Los Angeles, CA

*Pictured (l to r): Craig Caldwell, Wade Smith,
Robert Fronzak, AVP Environmental, AAR*



John H. Chafee Environmental Excellence Award (Amtrak Nominee)

Michael Lucero, Ticket/Baggage Clerk, Operations
Fresno, CA

*Pictured (l to r): Michael Lucero,
Senator Ron Wyden, OR*



Dr. Gary Burch Memorial Award

This award recognizes the individual railroad employee judged to have done the most to improve the safety of railroad passengers in a given year.

Blair Slaughter, Manager, Vehicle Industrial Design (Amtrak Nominee and Winner)
Wilmington, DE



Harold F. Hammond Safety Award

This award was established in 1986 and is awarded to an individual railroad employee who has demonstrated outstanding safety achievement during the preceding year.

Claude Fields, Machinist (Amtrak Nominee), Chicago

National Train Day

The EHS department staffed exhibits at Amtrak's National Train Day events in Washington, DC, Philadelphia, Chicago, and Los Angeles in May 2011. Employees provided information and answered questions about trains, Amtrak, and the environment, and provided background on Amtrak's conservation initiatives, such as:

Conserving Energy—In the Northeast Corridor, where many trains run on electricity, solar panels have been added to power 50 track lubrication systems.

Conserving Fuel—Amtrak has taken a variety of steps to reduce locomotive idling to conserve fuel and reduce emissions, for example, installing automatic start/stop technology on locomotives; providing training for locomotive engineers; and installing ground power in various locations.





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