DERAILMENT PREVENTION AND RESOURCE PROTECTION SOLUTIONS PROGRAMS

BNSF RAILWAY

Derailment Prevention

Reportable derailments. BNSF's derailment rate has declined by 23 percent since 1995, to a rate of 3.19 reportable incidents per million train miles in 2005.[1]

Track inspection programs. Most key routes on BNSF are inspected at least four times a week by BNSF track inspectors (which is, typically, twice the frequency required by the Federal Railroad Administration's track safety standards). The busiest main line routes are inspected daily. These inspections include a review of condition of track and right-of-way as well as whistle posts, crossbucks, and active warning devices. This program also requires observation of "power-off" lights at active warning devices that indicate a working power supply to the lights and gates. In addition, BNSF train crews are instructed to report any signal and crossing warning malfunctions immediately to BNSF's Network Operations Center (NOC) in Fort Worth.

Track inspection technology. BNSF's track measurement vehicles provide precise laser measurements of track geometry, including surface, cross-level, elevation, alignment, and gage. BNSF's three track geometry cars test track at a rate of 150,000 miles per year, meaning that each mile of highly traveled main line track is tested about six times a year. BNSF also has four hy-rail vehicles equipped with the same laser measurement systems found on track geometry cars, for use in confined areas such as yards, sidings and industry tracks. In addition, BNSF uses rail flaw detection equipment to ultrasonically inspect the rail for internal defects, and leases three Holland TrackStar rail test vehicles to test track strength on branches, sidings and yards under different types of loading conditions. All measurements are loaded into BNSF's central database to help BNSF prevent failures, plan preventive track maintenance, and run trend data.

Rail defect detection. BNSF has an aggressive rail detection program that uses advanced rail measurements and prediction models to identify and prevent rail defects that can result from metal fatigue due to rolling equipment. The models include a number of factors that influence defect rates, such as rail conditions, wheel loads, annual and accumulated tonnage. As defect rates change, the system automatically adjusts test frequencies to prevent service failures.

On-line freight car monitoring. BNSF has an extensive network of detectors on-line that measure the critical conditions of each passing freight car. As of early 2003, BNSF had 1,058 hot bearing detectors and 1,931 dragging equipment detectors, installed primarily along heavily-traveled main line track. BNSF is also installing truck performance detectors and wheel load detectors at critical locations, which measure the impact that railcar equipment exerts on the track.

[1] Source: BNSF data, as reported to the Federal Railroad Administration. A reportable derailment is defined by the FRA as one that results in at least $7,700 in damage.

Derailment analysis and education. Accurately determining the root cause of a derailment is essential to preventing future incidents. The Operations group has published a "Derailment Playbook" to ensure consistent data-gathering techniques in the field so that the true root cause of derailments can be determined. A Derailment Analysis Seminar is taught approximately four times a year in Topeka, Kan., by BNSF's Technical Research and Development team, and more focused presentations are taught in the field, as needed. This team of experts in Topeka is also available to answer questions about the cause of a derailment and, if needed, travel to derailment sites to help determine the root cause.

Weather and earthquake monitoring. BNSF's Network Operations Center (NOC) has direct links with Weather Data, Inc., for advance warning of adverse weather conditions specific to BNSF track locations. The NOC also has a direct link to the California Institute of Technology's earthquake monitoring system for real time updates on earthquake activity. The weather and earthquake data provides timely, accurate information BNSF can use to plan track inspections and help ensure the safety of its operation.

Damage Prevention and Resource Protection Solutions

Trespasser abatement. Removing trespassers from BNSF property helps protect them from injury and prevent loss or damage to commodities. BNSF's trespass abatement program raises awareness and helps prevent trespassing by using presentations, signs and media coverage to reach employees, law enforcement, prosecutors, court officials, and the public. In 2005, BNSF police interviewed and removed more than 15,293 people from BNSF property, and more than 2,546 people were arrested for trespassing and other criminal activity. This effort has resulted in a significant decrease in trespasser injuries and fatalities.

Safe freight handling. BNSF works closely with shippers and provides training to ensure safe and loss- and damage-free movement of commodities. In 2005, BNSF Resource Protection Solutions teams conducted more than 150,214 inspections of trains and railcars on BNSF to identify and prevent trespassers, open shipments, coiled steel movements, and other hazards. The total freight damage rate continues to decline and, for 2005 was at 19 cents per $100 revenue compared with 21 cents per $100 revenue in 2004. Also, in 2005, BNSF handled 1.8 million vehicles – a 16 percent increase compared with 2004. Of those shipments, 99.97 percent arrived damage-free. When exceptions are found, shippers are instructed about issues such as proper doorway use and protection on boxcars, loading

procedures, prohibited or restricted articles, certification paperwork, and weight restrictions. In 1998, 89.6 percent of the loads audited were deemed safe for transport. In 2005, 99.98 percent of loads arrived to their destinations damage-free as a result of the safety audits and training for the BNSF shipper base.

Crime suppression. To help ensure the safety and security of all shipments, BNSF records a change to any protective seal added or replaced for any reason during its transportation cycle. BNSF also generates a Shipment Integrity Report, which describes the reason and location for the replacement, generally within 24 hours to participating shippers.

Strategic transportation asset tracking. BNSF tracks high-risk and high-value shipments, at the request of the shipper. These shipments are flagged on BNSF's mainframe computer support system for additional inspections and increased awareness, as necessary, as the freight moves across BNSF's network.

Resource Operations Call Center. The Resource Operations Call Center (ROCC) call desk is available to the general public, including public law enforcement and emergency response agencies, to report rail-related emergencies or life-threatening events, such as vehicles stalled at highway-rail grade crossings. The ROCC then notifies BNSF dispatchers and affected public agencies to coordinate an incident response. In 2005, the ROCC call desk handled more than 31,413 reported issues, resulting in more than 209,770 notifications.