



Technical Highlights

Requirements for Railroads Regarding Locomotive Exhaust Emission Standards

In 1998, the U.S. Environmental Protection Agency (EPA) promulgated final exhaust emission standards for oxides of nitrogen (NO_x), hydrocarbons (HC), carbon monoxide (CO), particulate matter (PM) and smoke for newly manufactured and remanufactured locomotives and locomotive engines. The requirements for compliance with these emission standards are described in 40 CFR Part 92. These provisions apply to manufacturers, remanufacturers, and owners and operators of locomotives and locomotive engines manufactured on or after January 1, 1973. The three most significant requirements for railroads relate to: 1) remanufacture of locomotives, 2) maintenance of locomotives, and 3) testing of locomotives.

Remanufacture of Locomotives

The regulations require that post-1972 locomotives be covered by an EPA Certificate of Conformity when they are remanufactured. (*See Applicability of Locomotive Emission Standards*, EPA420-F-99-037, for more information about which locomotives are covered by these regulations.) The certificate certifies that the locomotive was remanufactured in a specific manner so that it complies with EPA's emission standards. Each certificate covers a group of similar locomotives that is referred to as an "engine family." A railroad may apply directly to EPA to obtain a certificate, or may rely on a supplier or remanufacturer that has obtained

a certificate. The company that obtains the certificate is referred to as the certificate holder, and is responsible for ensuring that the locomotive complies with EPA's emission standards.

Readers should note that EPA defines the term remanufacture broadly when determining the applicability of these standards. It does not require that the entire engine be reconditioned to be considered remanufactured, it only requires that all power assemblies be removed and replaced or requalified. EPA makes an exception for maintenance practices that replace power assemblies intermittently during ongoing maintenance rather than during a single overhaul. However, this exception only applies where the power assemblies are replaced so infrequently that it takes more than five years to replace all of them. If they are replaced more frequently than this, the locomotive must be covered by a certificate of conformity.

Emission-Related Maintenance

EPA regulations require that railroads perform emission-related maintenance on all regulated locomotives. This requirement is described in 40 CFR 92.1004. Emission-related maintenance is specified by the certificate holder and approved by EPA at

the time of certification. The certificate holder is required to provide the emission-related maintenance instructions to the railroads. Emission-related maintenance generally includes regular replacement of fuel injectors and air filters, as well as the use of fuels and lubricants meeting the specifications of the certificate holder. In most cases, it will also include frequent inspection of other emission-related components to ensure that they are functioning properly. This section of the regulations



also prohibits any maintenance that would reasonably be expected to adversely affect the emission performance of the locomotive.

Railroads have the flexibility to use maintenance practices other than those specified by the certificate holder, but only where the alternate maintenance is equivalent to the specified maintenance in terms of maintaining emission performance. Railroads

intending to deviate significantly from the specified maintenance should notify EPA to ensure that the alternate maintenance will meet the requirements of 40 CFR 92.1004.

Railroads are required to maintain records of all emission-related maintenance and any other maintenance that might reasonably be expected to affect the emission performance of the locomotive. These records must be kept for eight years from the time that the maintenance is performed. Railroads have flexibility in determining how these records should be maintained, and may contact EPA to ensure that their record keeping procedures comply with the requirements of 40 CFR 92.1004.



Locomotive Testing

EPA has established two testing programs to monitor the in-use emissions of locomotives. The first program is run by the certificate holders and is not discussed here. The second program is run by the Class I freight railroads and is described in

40 CFR 92.1003. Under this second program, which begins January 1, 2005, each Class I freight railroad is required to test 0.15 percent of its locomotive fleet each year using the specified EPA test procedure (40 CFR Part 92 Subpart B). This railroad testing program focuses on the locomotives in the fleet that have exceeded their useful life values. (Useful life is the period specified in a certificate during which the locomotive is designed to comply with the standards; it is generally equivalent to 750,000 miles or more.) Railroads may request approval from EPA to use other test programs that accomplish

the same objective of providing information about the emissions of high-mileage locomotives.

For More Information

Additional documents on locomotive exhaust emission standards are available electronically from the EPA Internet server at:

<http://www.epa.gov/oms/locomotv.htm>

For further information on compliance with these regulations, please contact the locomotive certification contact at:

U.S. Environmental Protection Agency
Office of Mobile Sources (6403J)
401 M Street SW
Washington, DC 20460