

The Clean Air Act

Acronym: CAA

What is the Clean Air Act? A History and General Overview of the Law

The Clean Air Act was passed to “protect and enhance” the nation’s air quality for the “public health and welfare” of U.S. citizens. The act is intended to protect citizens from health effects, damage to private property, as well as decreased agricultural crops and livestock production from air pollution. The original Clean Air Act (CAA) dates back to 1955, and it is one of the nation’s oldest environmental laws. The CAA has been added to and changed a number of times, most recently in 1990. The 1990 amendments expanded the requirements of the CAA substantially to include measures designed to combat acid rain, the degradation of the ozone layer, and other problems. The CAA now is often referred to as the CAAA to reflect the 1990 amendments. For the purposes of this document, the abbreviation CAA is used to refer to both the original legislation as well as the 1990 amendments.

The CAA is based on the National Ambient Air Quality Standards, a set of standards that designate acceptable quantities of certain pollutants in the air of a region. If the concentration of any of these air pollutants (ground-level ozone smog, carbon monoxide, particulates, sulfur dioxide and oxides of nitrogen) is above the National Ambient Air Quality Standard levels, the area is considered “non-attainment” of required values and faces specific requirements under the CAA. Almost every major metropolitan area in the country is considered non-attainment for the ozone standard. States must prepare and implement a plan for achieving attainment by a specified date. The levels of these pollutants are reduced by new source performance standards (NSPS) which set emission limits on specific industrial processes (e.g., petroleum refining). Air pollution can be caused in a variety of ways; industrial processes, boilers and incinerators, and motor vehicles may release hazardous chemicals or dust and ash into the air.

In addition to the ambient air quality standards above, the CAA regulates the release of chlorofluorocarbons (CFCs) and asbestos-containing materials (ACM) from railroad operations. CFCs are ozone-depleting chemicals; they weaken the ability of the earth’s atmosphere to guard against the harmful radiation that causes skin cancer, eye damage, and global warming. Asbestos is an insulating material widely used in the past for floor tiles, ceiling tiles, siding, thermal system insulation, and other applications where fire retardation was required or desirable. Asbestos fibers have been linked to serious adverse health effects because airborne asbestos fibers damage human lungs. Releases of asbestos-containing materials can occur during building renovation or demolition.

As is the case with other major environmental laws, EPA has primary responsibility for the implementation of the CAA, but has delegated this authority to states in many cases. State CAA requirements must be at least as stringent as the federal requirements and are often much more so. In addition, since the CAA is based on the National Ambient Air Quality Standards, your facility’s requirements will hinge on the air quality conditions of your area (i.e., the designation of your area as attainment or non-attainment of NAAQS standards). The requirements discussed below are federal level only and are intended to provide a general picture of environmental compliance

responsibilities under the law. *Your particular state may have additional requirements under its own CAA laws. In addition, the NAAQS designation of your particular air quality region will affect your compliance responsibilities. Contacting your state environmental agency representative is crucial to understanding your CAA requirements (see Appendix A).*

To see the regulations:

- 40 CFR 50: National Primary and Secondary Ambient Air Quality Standards
- 40 CFR 70: Permits
- 40 CFR 82: Ozone Depletion

How Does the CAA Apply to Railroad Operations?

The CAA sets up two major categories for air pollution regulation: mobile sources (e.g., automobiles, locomotives) and stationary sources (e.g., power boilers, solvent-based cleaning stations). Possible air pollution sources for the railroad industry include boilers, incinerators, forges, painting or refinishing operations, shop blasting and dust collection control systems, degreasers, and the filling and maintaining of fuel storage tanks.

The CAA regulations on chlorofluorocarbons (CFCs) and asbestos-containing materials also affect short line railroad operations. Equipment containing CFCs, such as refrigeration units or air conditioning systems, are common. In addition, many old railroad facilities have asbestos-containing materials in floor tiles, ceiling tiles, siding, or thermal system insulation.

Title II of the 1990 CAA amendments deals with “mobile sources” and seeks to phase in a new set of limits on pollution production (also known as air “emissions”) between 1994 and 1998. If necessary, the EPA has the discretion to implement an additional round of mobile source emission limits in 2003.

General Federal CAA Requirements

The NAAQS designation of your particular air quality region will affect your compliance responsibilities under state and federal laws. Compliance responsibilities may change if processes are changed or the output of air pollutants is significantly increased.

Air Toxics

The 1990 CAA greatly expands U.S. EPA’s control over air toxic pollutants and their emissions. The CAA regulates 188 hazardous air pollutants, requires the installation of control mechanisms to reduce toxic air emissions from specific equipment, and requires that a program to control accidental release of toxic pollutants be established. In addition, it is unlawful for any person maintaining, servicing, repairing, or disposing of any appliances to knowingly release CFCs. Some air toxics potentially used at railroad facilities include solvent releases from painting and/or paint stripping operations and CFC releases from improperly disposed cooling equipment (such as refrigerators).

To see the regulations:

- 40 CFR 50: National Primary and Secondary Ambient Air Quality Standards

Mobile Sources

Because mobile sources are one of the primary contributors to air pollution, the CAA establishes pollution standards for new vehicles, including locomotives. Some regions have attempted to apply visible smoke standards to locomotives. In addition to regulating emissions from vehicles during various in-use operating conditions, EPA issued a final rule concerning locomotive emissions in April 1998 (63 *FR* 18977). The primary focus of the rule is the reduction of emissions of nitrogen oxides (NO_x). The standards will take effect in 2000. NO_x is a precursor to the formation of ground level ozone, which causes health problems such as damage to lung tissue, reduction of lung function, and sensitization of lungs to other irritants, as well as damage to terrestrial and aquatic ecosystems.

In the locomotive emissions rule, EPA also promulgated standards for emissions of hydrocarbons (HC), carbon monoxide (CO), particulate matter (PM), and smoke. There are also a variety of provisions to implement the standards and to ensure that the standards are met in-use. These provisions include certification test procedures, and assembly-line and in-use compliance testing programs. Also included in the rule is an emissions averaging, banking and trading program to improve feasibility and provide flexibility in achieving compliance with the proposed standards.

Air Quality Permitting

Large stationary sources of pollution are regulated by states, but operating permits are required for various railroad processes that are not exclusive to large or “major” facilities. These processes may include:

- Filling and maintaining fuel storage tanks (may be regulated for gasoline, but permitting is normally not required for diesel fuel storage due to its low volatility);
- Cleaning equipment for parts using halogenated solvent cleaners. If using halogenated solvent cleaning machines, facilities must comply with the final air toxic rule for these machines (40 CFR Part 63, Subpart T). *For more information, see 59 FR 61801; December 2, 1994*);
- Refinishing or painting rail cars in spray booths;
- Operating a boiler or incinerator at the steam power house; and
- Shot blasting and dust collection control system.

Railroad facilities may also be required to install special equipment to abate the emissions, report material usage and/or conduct various compliance tests.

To see the regulations:

- 40 CFR 70: Permit Requirements

Asbestos-Containing Materials (ACM)

A variety of environmental regulations pertain to the removal and disposal of ACM. Renovations or demolition operations involving ACM are regulated by the Clean Air Act's National Emission Standards for Hazardous Air Pollutants (NESHAPs). Asbestos abatement activities done in conjunction with demolition or renovation should be conducted only by trained asbestos abatement personnel. Personal protection equipment must be worn, per Occupational Safety and Health Administration (OSHA) requirements. (For more compliance information see Chapter II: Building Renovation/Demolition: Asbestos concerns.)

CAA Enforcement Provisions and Penalties

Enforcement penalty information for civil, criminal and field-issued penalties are described below. The enforcement penalties are, for the most part, directed at senior management personnel or corporate officers, but a staff member who willfully and knowingly violates a regulation that can lead to injury of others also can be convicted. Field penalties are those that are issued by an inspector who has dropped by unannounced for an inspection.

- Federal civil penalties: fines of up to \$25,000 per day per violation. These penalties also apply to violations of an air use permit and violations for a state's attainment plan or federal regulation.
- Federal criminal penalties for negligence: fines pursuant to Title V and two years imprisonment.
- Federal criminal penalties for a knowing violation: fines as high as \$1,000,000 per day per violation and fifteen years imprisonment.
- Field citation penalties: as high as \$5,000 per violation.