

Clean Air Act

Introduction

The Air Quality Act was enacted in 1967 to protect and enhance the nation's air resources and promote public health and welfare. This was the EPA's response to concerns over deterioration of urban air quality. In 1970, the Clean Air Act (CAA) was enacted to further expand efforts set forth by the Air Quality Act. The CAA directed efforts and provided leadership to the states by determining effective control technology for improving air quality within state boundaries. A scientific review panel was established to determine acceptable levels of air quality to protect sensitive individuals, known as National Ambient Air Quality Standards (NAAQS). The CAA continued to expand with the amendments of 1977 and 1990.

Regulatory Summary

Clean Air Act

The Clean Air Act (CAA) is the comprehensive federal law passed in 1970 that regulates air emissions from area, stationary, and mobile sources. In addition to setting maximum pollutant standards, the CAA directs states to develop State Implementation Plans (SIPs) applicable to appropriate industrial sources within each state. Each state has the responsibility for determining air quality and regulating sources within their borders. The CAA provides guidelines for the states to write SIPs, which include measures such as: air quality ambient monitoring, air quality dispersion models, and projections of growth.

1977 Amendments

Due to controversies evolving from the CAA, the 1977 amendments were enacted to refine its basic programs. The amendments can be summarized in three general categories:

- Improvements in NAAQS and SIPs programs
- Performance standards for new/modified stationary sources of air pollution
- Special pollution programs

In areas with clean air, emission limitations in SIPs must be set at a level that ensures compliance with the NAAQS. In non-attainment areas, sources are subject to controls that are more stringent designed to bring those areas into attainment with the NAAQS.

The New Source Performance Standards (NSPS) are implemented when there is construction of a new source, reconstruction of an existing source, or modification of an existing source that increases hourly emissions at maximum load. A Prevention of Significant Deterioration (PSD) pre-construction permitting program is required for new sources in areas that attain the NAAQS. This program requires compliance with air quality increments through "best available control technology" (BACT). Sources in areas that do not attain the NAAQS are subject to a Nonattainment New Source Review (NNSR) pre-construction permitting program for emission reduction through installation of control technology to achieve the "lowest achievable emission rate" (LAER). The special pollution programs concern national emission standards for hazardous air pollutants (NESHAPS) and the protection of visibility in national parks.

1990 Amendments

Due to concerns from industry and environmental groups, the 1990 CAA amendments were enacted with the intention to meet unaddressed or insufficiently addressed problems such as acid rain, ground-level ozone, stratospheric ozone depletion, and air toxins. These amendments greatly broadened the federal role in air pollution control and tightened pollution control requirements in cities that have not attained federal air quality standards. Key provisions of the CAA 1990 Amendments are:

- **Title I** established National Ambient Air Quality Standards (NAAQS) for areas that do not attain ambient air quality standards (non-attainment areas). Special pollutants targeted by NAAQS are ozone, carbon monoxide (CO), and small particulate matter (PM-10). Emphasis is placed on an incremental approach to attainment for these areas, with severity ranking, providing controls that are more stringent and extended deadlines.
- **Title II** tightened the automobile source emission standards and established the clean fuel vehicle program. The actions were implemented in an attempt to reduce auto emissions and obtain cleaner, reformulated gasoline in certain areas having the highest ozone levels, including Baltimore, Chicago, Hartford, Houston, Los Angeles, Milwaukee, New York, Philadelphia, and San Diego.
- **Title III** lists 189 toxic air pollutants and sets their emission standards. Any stationary source emitting more than 10 tons per year of these listed substances or 25 tons per year of any combination of these substances is considered a major source and subject to the regulation. Installation of Maximum Achievable Control Technology (MACT) controls on major sources of air toxins is required. After MACT controls are installed, the EPA is to assess remaining health risks and issue more stringent "residual risk" standards, if needed.
- **Title IV** requires phased reductions of SO₂ and NO_x emissions, which are major contributors to acid rain. Compliance with the emission limitations requires electrical utility emitters to install and operate continuous emission monitoring devices or use an EPA-approved alternative method to provide emission information. Emission information is to be submitted to the EPA on a quarterly basis.
- **Title V** established a state-run and federally enforceable operating permit program. All states are required to develop and submit operating permit programs for major pollutant sources to the EPA. Permits must include emission limits, compliance schedules, and monitoring and reporting requirements. Periodic reviews (reports, compliance certifications, inspection, etc..) are used to assure continued permit compliance. Major sources pay emission-based fees to fund the state air pollution programs.
- **Title VI** defines and regulates ozone-depleting substances. Common ozone depleting substances include chlorofluorocarbons (CFCs), hydro chlorofluorocarbons (HCFCs), carbon tetrachloride, halon, and methyl chloroform. The phase-out period extends to the year 2030, depending on the substance. There have been several exceptions granted based on medical and safety device parameters.
- **Title VII** expands the authority of the EPA, states and private citizens to enforce the CAA. Civil enforcement provisions allow for penalties up to \$27,500 per day per violation. "Knowing" violations are punishable as criminal offenses with fines up to \$1 million and jail terms of up to five years.
- **Titles VIII-XI** address issues relating to research, studies, grants and assistance programs.

Developments recently added to the air quality regulatory arena include global warming or greenhouse gas (GHG) issues, revised NAAQS standards for ozone, and the 1999 Ozone Transport Rule. All three have the potential to greatly affect the natural gas industry by requiring significant pollution control equipment and increasing the market for natural gas, which is one of the cleanest burning fossil fuels currently available.

Natural Gas Industry

Typical equipment in the natural gas industry, both new and existing, could be subject to NSPS and/or NESHAP, programs that specify design, operation, control, testing, monitoring, record keeping, and/or reporting requirements for subject equipment. The table at the end of this section outlines NSPS and NESHAP requirements for typical natural gas industry equipment. Most states have similar or more stringent requirements for new and existing equipment written in their SIPs.

The PSD and NNSR pre-construction permitting programs affect construction of new facilities and modifications at existing facilities to increase capacity or replace aging equipment. Projects that are subject to PSD and NNSR must be planned well ahead of any construction activity because it could take two years to get the permit application approved, and the planners need to know of any BACT or LAER requirements. BACT takes into account the cost effectiveness of

installing an alternative control technology. LAER does not consider economic reasonability. BACT and LAER are not static control requirements; they change as technology advances and as industry elects to install the new technology. Most states have BACT requirements for projects that are not subject to PSD or NNSR. Projects that are subject to NNSR require an emissions offset. Any increase in emissions must be offset in accordance with the offset ratio. These offsets must be either accomplished through emission reductions at the facility or purchased from other facilities that have achieved emission reductions. The table on the next page summarizes PSD and NNSR permitting requirements.

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If you have specific questions related to an environmental issue, please contact your company environmental staff and/or an environmental consultant.

PSD and NNSR Permitting Requirements

Based on NO_x Emissions

<i>Area Attainment Status</i>	<i>Existing Potential Emissions (tons/year)</i>	<i>Proposed Increase in Emissions (tons/year)</i>	<i>BACT</i>	<i>LAER</i>	<i>Emissions Offset Ratio</i>
<i>Attainment</i>	<i>Less than 250</i>	<i>Less than 250</i>			
		<i>250 or More</i>	<i>X</i>		
	<i>250 or More</i>	<i>Less than 40</i>			
		<i>40 or More</i>	<i>X</i>		
<i>Marginal Non-Attainment</i>	<i>Less than 100</i>	<i>Less than 100</i>			
		<i>100 or More</i>		<i>X</i>	<i>1.10 to 1</i>
	<i>100 or More</i>	<i>Less than 40</i>			
		<i>40 or More</i>		<i>X</i>	<i>1.10 to 1</i>
<i>Moderate Non-Attainment</i>	<i>Less than 100</i>	<i>Less than 100</i>			
		<i>100 or More</i>		<i>X</i>	<i>1.15 to 1</i>
	<i>100 or More</i>	<i>Less than 40</i>			
		<i>40 or More</i>		<i>X</i>	<i>1.15 to 1</i>
<i>Serious Non-Attainment</i>	<i>Less than 50</i>	<i>Less than 50</i>			
		<i>50 or More</i>		<i>X</i>	<i>1.20 to 1</i>
	<i>50 or More</i>	<i>Less than 25</i>			
		<i>25 or More</i>		<i>X</i>	<i>1.20 to 1</i>
<i>Severe Non-Attainment</i>	<i>Less than 25</i>	<i>Less than 25</i>			
		<i>25 or More</i>		<i>X</i>	<i>1.30 to 1</i>
	<i>25 or More</i>	<i>Less than 25</i>			
		<i>25 or More</i>		<i>X</i>	<i>1.30 to 1</i>

All major sources and some minor source facilities are subject to emission fees that are assessed based on the previous year emissions. Some states charge annual permit fees. All states charge fees for permit applications and permit renewals.

NSPS and NESHAP Requirements for Typical Equipment in the Natural Gas Industry

<i>Equipment Type</i>	<i>Potentially Applicable Standard</i>	<i>Applicability'</i>			<i>Requirements'</i>
		<i>Construction, Modification, or Reconstruction Date/s</i>	<i>Criteria 1</i>	<i>Criteria 2</i>	
<i>Gas Turbine</i>	<i>NSPS, Subpart GG</i>	<i>After October 3, 1977</i>	<i>Heat input greater than or equal to 10 MMBTU/hr.</i>		<i>a. 75 ppmv for NOX if heat input greater than or equal to 100 MMBTU/hr; b. Otherwise, 150 ppmv for NOx; c. Initial Stack Test; d. Fuel Monitoring; e. Recordkeeping; and f. Reporting.</i>
<i>Volatile Organic Liquid Storage Tank</i>	<i>NSPS, Subpart K</i>	<i>After June 11, 1973 Before May 19, 1978</i>	<i>Capacity greater than 40,000 gallons.</i>	<i>Condensate stored, processed, and/or treated prior to custody transfer.</i>	<i>g. Floating roof or vapor recovery system, h. Recordkeeping, and I. Reporting.</i>
	<i>NSPS, Subpart Ka</i>	<i>After May 18, 1978 Before July 23, 1984</i>	<i>Capacity greater than 40,000 gallons.</i>	<i>Condensate stored, processed, and/or treated prior to custody transfer.</i>	<i>j. Floating roof or vapor recovery system, k. Recordkeeping, and i. Reporting.</i>
	<i>NSPS, Subpart Kb</i>	<i>After July 23, 1984</i>	<i>Capacity greater than or equal to 10,566 gallons.</i>	<i>Capacity greater than or equal to 419,997 gallons if liquid is condensate stored, processed, and/or treated prior to custody transfer.</i>	<i>Varies from recordkeeping only to: a. Floating roof or vapor recovery system, b. Recordkeeping, and C. Reporting.</i>

NSPS and NESHAP Requirements for Typical Equipment in the Natural Gas Industry

<i>Equipment Type</i>	<i>Potentially Applicable</i>	<i>Applicability'</i>			<i>Requirements'</i>
	<i>Standard</i>	<i>Construction, Modification, or Reconstruction Date/s</i>	<i>Criteria 1</i>	<i>Criteria 2</i>	
<i>Volatile Organic Liquid</i>	<i>NESHAP, Subpart HH</i>	<i>N/A</i>	<i>Tank located at a natural gas production facility that is a major HAP source.</i>	<i>The tank is a 2-or 3-phase separator which the "rich" glycol stream of a glycol dehydration unit is passed to remove entrained gas and hydrocarbon liquid.</i>	<i>d. Floating roof or vapor recovery system,</i>
<i>Storage Tank (Continued)</i>					<i>e. Recordkeeping, and</i>
					<i>f. Reporting.</i>
<i>Glycol Dehydration Unit</i>	<i>NESHAP, Subpart HH</i>	<i>N/A</i>	<i>Triethylene glycol dehydration unit at a natural gas production facility.</i>		<i>Varies from initial testing and recordkeeping only to:</i>
			<i>Or</i>		<i>a. Vapor recovery system;</i>
			<i>Glycol dehydration unit located at a natural gas production facility that is a major HAP source.</i>		<i>b. Design and operating standards;</i>
					<i>c. Initial testing;</i>
					<i>d. Continuous monitoring;</i>
					<i>e. Periodic leak detection and repair program;</i>
					<i>f. Recordkeeping; and</i>
					<i>g. Reporting.</i>

**NSPS and NESHAP Requirements for
Typical Equipment in the Natural Gas Industry**

<i>Equipment Type</i>	<i>Potentially Applicable Standard</i>	<i>Applicability'</i>			<i>Requirements'</i>
		<i>Construction, Modification, or Reconstruction Date/s</i>	<i>Criteria 1</i>	<i>Criteria 2</i>	
<i>Glycol Dehydration Unit (Continued)</i>	<i>NESHAP, Subpart HHH</i>	<i>N/A</i>	<i>Glycol dehydration unit located at a natural gas transmission and/or storage facility that is a major HAP source.</i>		<i>Varies from initial testing and recordkeeping only to: a. Vapor recovery system; b. Design and operating standards; c. Initial testing; d. Continuous monitoring; e. Periodic leak detection and repair program; f. Recordkeeping; and g. Reporting.</i>
<i>Sweetening Unit with or without Sulfur Recovery Unit</i>	<i>NSPS, Subpart LLL</i>	<i>After January 20, 1984</i>	<i>Located at an onshore natural gas processing plant.</i>	<i>Acid gas is not re-injected into oil-or-gas bearing geological strata or otherwise not released to the atmosphere.</i>	<i>Varies from recordkeeping only to: a. Sulfur recovery unit and/or flare or incinerator, b. Initial testing, c. Continuous monitoring, d. Recordkeeping, and e. Reporting.</i>
<i>Boiler, Reboiler, or Heater</i>	<i>NSPS, Subpart Dc</i>	<i>After June 9, 1989</i>	<i>Maximum heat input greater than or equal to 10 MMBTU/hr.</i>		<i>Natural Gas Only: a. Individual Fuel Meter and b. Initial Reporting.</i>

NSPS and NESHAP Requirements for Typical Equipment in the Natural Gas Industry

<i>Equipment Type Standard</i>	<i>Potentially Applicable</i>	<i>Applicability¹</i>	<i>Requirements²</i>		
<i>Construction, Modification, or Reconstruction Date/s</i>	<i>Criteria 1</i>	<i>Criteria 2</i>			
<i>Piping Components (compressors, pumps, valves, relief valves, flanges, etc..)</i>	<i>NSPS, Subpart KKK</i>	<i>After January 20, 1984</i>	<i>Located at an onshore natural gas processing plant.</i>		<i>c. Periodic leak detection and repair program, d. Recordkeeping, and e. Reporting.</i>
	<i>NESHAP, Subpart HH</i>	<i>N/A</i>	<i>Piping components located at a natural gas production facility that is a major HAP source.</i>	<i>Volatile organic HAP contents greater than or equal to 10 percent by weight.</i>	<i>f. Periodic leak detection and repair program, g. Recordkeeping, and h. Reporting.</i>
<i>Cooling Tower</i>	<i>NESHAP, Subpart Q</i>	<i>N/A</i>	<i>Cooling tower located at a major HAP source in which the cooling water is cooled by direct contact with air.</i>	<i>Cooling tower operated with chromium-based water treatment chemicals on or after September 8, 1984.</i>	<i>i. Discontinue use of chromium-based water treatment chemicals, j. Initial reporting, k. Water testing, l. Compliance notification, and m. Recordkeeping.</i>
<i>Parts Cleaner (Degreaser)</i>	<i>NESHAP, Subpart T</i>	<i>N/A</i>	<i>Parts cleaner located at a major HAP source.</i>	<i>Cleaning solvent contains specified halogenated HAP in concentrations greater than 5 percent by weight on or after November 29, 1993.</i>	<i>Varies from recordkeeping only to: a. Design and operating standards, b. Monitoring, c. Recordkeeping, and d. Reporting.</i>
<p><i>The applicability criteria should be used as a first pass to determine if the regulation is applicable. There may be relevant exemptions that are not listed.</i></p> <p><i>²All of the requirements may not be listed. In addition, some equipment may be subject to a regulation, but only have minimal applicable requirements. As such, a more complete analysis is required based on the given equipment.</i></p>					

Asbestos Management

Introduction

Asbestos refers to six naturally occurring, fibrous silicate minerals found in certain types of rock. In the past, manufacturers mixed the fibers with different binding material and used them in products such as boiler and building insulation, floor tiles, and automotive brake linings. Its ability to resist corrosion, fire, and some mechanical stress made asbestos a very popular building material.

During the early 1970s, various health concerns led to the ban of certain asbestos applications and the establishment of specific asbestos procedures. Although releases of asbestos fibers can be a significant environmental problem, the mere presence of asbestos in a building does not necessarily mean that the health of building occupants is endangered. If asbestos-containing material (ACM) remains in good condition and is not disturbed, exposure will be negligible. The EPA and the Occupational Safety and Health Administration (OSHA) have worked in providing regulations that protect employees and the public from the potential health and environmental risks posed by asbestos. In some cases, an asbestos operations and maintenance (O&M) program is more appropriate than other asbestos control strategies, including removal.

Although the Resource Conservation and Recovery Act (RCRA) does not specifically list asbestos as a hazardous waste, it is a hazardous substance or material under other federal regulations (TSCA, OSHA, and DOT). The special requirements of these programs, in addition to air pollution control requirements for asbestos removal operations, must be considered whenever asbestos is encountered.

Regulation Summary

The EPA and OSHA have published regulations to control exposures to asbestos fibers. EPA regulations focus on the manufacture and application of asbestos, as well as removal of friable or damaged asbestos-containing building materials (ACBM) during renovation or demolition activities in existing facilities. The EPA also regulates the industrial emissions of asbestos fibers and the disposal of asbestos wastes. OSHA's asbestos regulations, which focus on protecting workers from occupational exposures to asbestos fibers, may be located in the following publications:

EPA

- Asbestos Hazard Abatement Reauthorization and Emergency Act (AHAREA) - 40CFR763 Subpart E and Appendices B, C, and D.
- The National Emissions Standards for Hazardous Air Pollutants (NESHAPS) - 40CFR Part 61, Subparts A and M

OSHA

- General Industry Standards (Occupational Exposure to Asbestos) - 29CFR 1910.1001
- Construction Standards (Asbestos in Construction) - 29CFR 1926.1101

DOT

- Transportation of Hazardous Materials (Asbestos) - 49CFR 171-172

EPA and OSHA regulations require specific levels of worker training depending on the state and condition of the ACBM and the type of work to be performed. In addition, asbestos abatement projects that are more extensive than a "small-scale/short-duration" project require personal and ambient air monitoring as well as the use of appropriately trained personnel. Any person performing asbestos building inspections must be accredited in accordance with the EPA's Model Accreditation Program (MAP).

Natural Gas Industry

Because the use of asbestos peaked in the period between World War II and the 1970s, nearly every industry must deal with asbestos-related issues. The natural gas industry used asbestos in various materials and applications during this timeframe. Listed are several of the materials/applications:

- Thermal insulation (on piping, heaters, boilers, tanks, ducts)
- Underground pipe coating
- Gaskets
- Fireproofing of building materials
- Transite building siding panels
- Floor tile and floor tile adhesives
- Ceiling tiles

Impact to industry may include:

- Utilizing licensed contractors
- Making notifications to state agencies
- Disposal in approved facilities
- Hazard assessments, and
- Procedures for dealing with asbestos

Due to the large number of products potentially containing asbestos and the number of federal and state agencies regulating asbestos, companies in the natural gas industry must develop thorough programs in both the environmental and safety areas to ensure compliance with the regulations and to protect employee health. Different levels of training must be provided to employees who may encounter asbestos levels that depend upon job classification and level of exposure.

Air monitoring must be conducted when asbestos is being disturbed or removed, and specific work procedures must be developed according to the results of the monitoring to ensure that employees are not exposed above permissible levels and that airborne asbestos fibers do not migrate out of the work area. Procedures must also be established to ensure that asbestos waste is properly contained, labeled, and disposed according to regulatory requirements.

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