Air Emissions Management

Key Takeaways:

- Understanding the aims of the Clean Air Act Amendments (CAAA) of 1990.
- Knowing the meanings of attainment and nonattainment areas in the Clean Air Act.
- Knowing the key terms associated with Title I compliance requirements, including National Ambient Air Quality Standards (NAAQS), degrees of nonattainment, major source, Criteria Air Pollutants, and New Source Performance Standards (NSPS).
- Understanding the requirements for attainment and maintenance of National Ambient Air Quality Standards as explained in Title I.
- Understanding how to meet the required limits for Hazardous Air Pollutants as defined in Title III.
- Knowing the key terms associated with Title III compliance requirements, including Hazardous Air Pollutants, Maximum Air Control Technology, and Risk Management Planning, and NESHAPS.
- Comprehending the aims and requirements of Operating Permits as defined in Title V.
- Knowing the key terms surrounding Title V compliance requirements, including Potential To Emit, Actual Emissions, and Allowable Emissions
- Retaining the process for determining air-permitting compliance.
- Knowing the types of air permits from degree of least stringency to highest, including permit exemption, construction permits, minor source permits, synthetic minor permit, and major source permit.

Course Description

AIR POLUTION The World Health Organization (WHO) states that “Air pollution is contamination of the indoor or outdoor environment by any chemical, physical or biological agent that modifies the natural characteristics of the atmosphere. Household combustion devices, motor vehicles, industrial facilities and forest fires are common sources of air pollution. Pollutants of major public health concern include particulate matter, carbon monoxide, ozone, nitrogen dioxide and sulfur dioxide. Outdoor and indoor air pollution cause respiratory and other diseases, which can be fatal.” “Air pollution is a major environmental risk to health. By reducing air pollution levels, countries can reduce the burden of disease from stroke, heart disease, lung cancer, and both chronic and acute respiratory diseases, including asthma.” In response to activism, the Clean Air Act Amendments of 1990 were passed to reduce pollution and establish needed standards for industrial air emissions. Clean Air Act (CAA) Amendments of 1990: – Permit the EPA to limit the level of air pollutants anywhere in the country. – Permit individual states to have stricter air

emission regulations, but weaker regulations than those decided by the EPA. – Allow facilities to have air emission permits where needed, and that the permit is properly documented (note: not all emission sources need permits). The most common air pollutants recognized by the EPA are “Criteria Air Pollutants”, because the EPA developed a health-based criteria to set permissible levels of exposure to them. These Criteria Air Pollutants lead to respiratory health issues and negatively impact our environment. Every Criteria Air Pollutant also has a National Ambient Air Quality Standard associated with it. The six Criteria Air Pollutants are: oxides of nitrogen, sulfur dioxide, lead, ozone, carbon monoxide, and particulate matter. What to know about Air Quality – What are the air emission sources and rates? – What regulations apply? – Is the facility compliant? – Does the facility need permits? Determining if a facility needs permits is complicated sometimes. In this section, we will outline the six steps involved in the permitting/compliance process. Step 1: Emission inventory check – Discover potential air emission sources (such as boilers or heating equipment, emergency power generators, paint booths, foundries, and fuel oil tanks). – Record associated pollutants, which can sometimes by accomplished by using SDS. – Calculate emission rates through material usage records. – Investigate operating practices and production rates. – Calculate established emission rates. – Perform emission testing, as a last resort–emission test results may be used to determine PTE and actual emissions, provided that the tests are an accurate portrayal of current conditions at the facility. Step 2: Research the current performance of control equipment – Review vendor information (operating/maintenance manuals). – Review operating parameters. – Verify control efficiencies. Step 3: Calculate actual and potential emissions everywhere – Include all emissions, regardless of whether they are released outside through a stack, or conduit, or through doors, windows and general purpose ventilating systems (i.e., fugitive emissions). – Presume the maximum design capacity of the source, operating 24 hours per day, 365 days per year, for a total of 8,760 hours per year. – Calculate PTE = emission rate x 8,760 hours/year. Step 4: Determine applicability of regulations – Research Clean Air Act Amendments. – Research state regulations. – Find a good state regulatory contact for educational purposes. – Secure a copy of state and local regulations because most air programs are administered at a state or local level. Step 5: Determine compliance status Step 6: Provide supporting documentation for the source ID, emission inventory and compliance status determination