Air Quality Consulting and Engineering

AECOM Delivering a better world

Overview

As the number and stringency of air quality regulatory requirements increases, AECOM is working with our clients to strategize and implement compliance solutions using innovative approaches and advanced technology. We also help our clients in developing nations confront the types of air quality issues that we have addressed for years in developed nations.

AECOM's comprehensive air quality consulting and engineering services are provided through the collaboration of over 500 air quality professionals across six continents. Our professionals comprise the largest, most knowledgeable, skilled and longest tenured air quality practice in the world. Our practitioners share knowledge and experiences through a global technical practice network that we use to promote technical excellence and bring the best resources to every project. We also participate in industry and environmental associations to stay on top of constantly evolving regulatory requirements and to understand potential compliance challenges.

AECOM recognizes that we need to help our clients adapt and respond to a constantly changing and extremely challenging regulatory landscape. We bring together the unique capabilities of our specialist technology groups and strong local presence provided by our global reach. We have the expertise, knowledge and resources to provide solutions and technical support anywhere in the world. In addition to compliance services, AECOM has developed numerous organization-wide greenhouse gas (GHG) emissions inventories and benchmarking analyses to facilitate companies' participation in GHG reporting, management, and emission reduction initiatives, including lifecycle assessments to analyze alternative energy mix scenarios. Being on the front line of global response to climate change, we work closely with our clients to provide solutions that balance business, technical, and sustainability issues.

Areas of Expertise

- Air Permitting
- Non-attainment New Source Review Permitting
- Air Pollution Control Engineering
- Ambient Monitoring & Source Testing
- Atmospheric Dispersion, Accidental Release & CFD Modeling
- Carbon Management
- Construction Assessment
- Emission Inventories & Mobile Source Studies
- Expert Witness & Testimony
- Health Risk Assessment
- Occupational Health & Safety & Indoor Air Quality Management
- Odor and Noise Modeling, Monitoring & Control
- Regulatory Strategy and Compliance Management
- Strategic Technical Support to Trade Association

Key AECOM Attributes

- A team of experienced professionals who will work with you to integrate environmental and engineering information in order to develop the best regulatory strategy.
- Participation in and support to industry and environmental associations as they evaluate emerging issues and impacts of upcoming regulatory requirements.
- Local presence and well established relationships that give us ready access to area market knowledge and regulatory decision makers.
- Visionary corporate culture that consistently emphasizes excellence in environmental health and safety performance, engineering design and construction management, client satisfaction, cost containment, and use of innovative technologies.

AIR QUALITY SERVICES

- Regulatory Strategy and Compliance Management
- Air Permitting
- Atmospheric Dispersion, Accidental Release & CFD Modeling
- Ambient Monitoring & Source Testing
- Emission Inventories, Mobile Source Studies, Carbon Management

Safety for life

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ZERO ACCIDENTS
ZERO ENVIRONMENTAL INCIDENTS
ZERO ETHICAL BREACHES
ZERO DEFECTS

MORE INFORMATION

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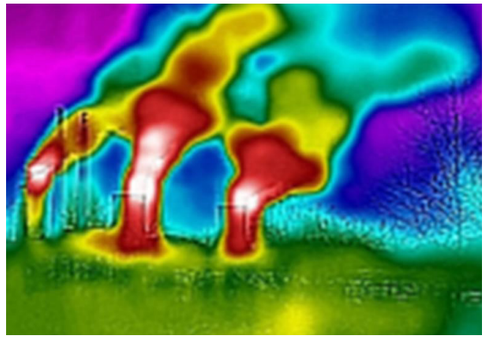
AECOM

AIR MODELING



AECOM provided full air dispersion modeling support for a new combined-cycle power plant located in Virginia. The refined air dispersion modeling analysis included an assessment of criteria pollutants and air toxics compounds using the United States Environmental Protection Agency's (EPA) preferred model, AERMOD, in accordance with both EPA guidelines. The air dispersion modeling included:

- Full modeling analysis for all combustion turbine operating conditions (including startup and shutdown)
- Refined assessments for 1-hour NO_2 National Ambient Air Quality Standard (NAAQS) using EPA's Tier 2 NO_X to NO_2 conversion approach
- An assessment of $PM_{2.5}$ PSD increments and NAAQS (including secondary formation)
- An assessment of ozone impacts, and
- Class I area modeling using the CALPUFF modeling system

AECOM also supported the project by obtaining a waiver from the Federal Land Managers for having to conduct an analysis of impacts associated with regional haze and acid deposition at nearby PSD Class I areas (i.e. National Parks). AECOM's support also included the submittal and negotiation of an air dispersion modeling protocol. AECOM successfully respond to agency and public comments on the application and draft air permit which ultimately results in the project receiving its air permit upon review from the Virginia Air Pollution Control Board.

PERMITTING AND COMPLIANCE

AECOM has provided air permitting and air regulatory compliance support to a petroleum refinery in Ohio for more than 20 years. These services include air permitting (minor source and Prevention of Significant Deterioration [PSD]), annual emissions reporting, responding to state and USEPA data requests, negotiations regarding violations, permit and regulatory applicability reviews, and compliance certifications. The same core team of AECOM air quality specialists have provided these services over the years providing a high level of continuity and institutional knowledge. Additionally, the refinery benefits from our team's broad experience with other facilities and access to AECOM's national network of experts in virtually every environmental specialty.

AECOM is also well respected by state agency staff and has been a successful advocate for the facility in negotiations regarding compliance issues or obtaining favorable permit language. For air permitting, AECOM has also helped the facility take advantage of the flexibility allowed by provisions of the New Source Review Reform regulations and ongoing updates to USEPA guidance. AECOM has also been an important partner to the refinery in helping understand and address new regulatory programs and also helped the refinery implement and maintain an electronic compliance management database to stay on top of all compliance obligations.

STACK TESTING

AECOM provided emissions testing services at a demilitarization facility located in Kentucky. Emissions testing conducted of the main plant included sampling and measurement of

- PM, CO, NO_x, NH_3, SO_2, VOCs, Semivolatile VOCs
- Metals, Hydrogen chloride (HCl), hydrogen fluoride (HF), chlorine (Cl_2), Total Hydrocarbons (THC).
- Polychlorinated dibenzodioxins and polychlorinated dibenzofurans (PCDDs/PCDFs), Polychlorinated biphenyls (PCB), Polyaromatic hydrocarbons (PAH),
- Total Organic Emissions (TOE), Total unspeciated volatile organics (C1-C7).

Emissions testing was conducted to demonstrate facility emissions are protective of the public and environment, establish emission factors to be used for calculating estimated emissions to support the air permit reporting requirements and demonstrate integrated facility operations at the maximum achievable rate, while maintaining compliance with governing plans, procedures, permits and other requirements.

AECOM also supported the project in the development of unique sampling and analytical solutions for specific target analytes. After executing the field program AECOM submitted a sampling report that included the written description of the sampling location, sampling performed, summary of sampling results, and a quality assurance information.

This testing performed was extensive (10 sampling trains at 5 separate locations) involving 25 AECOM staff on-site; Coordinating field staff, schedule, equipment, and field sampling were managed by experienced AECOM senior staff to ensure testing was conducted on schedule and within budget.

AIR MONITORING

AECOM performed air monitoring services at a former manufactured gas plant (MGP) site during the construction phase of the remedial activities. Measurement parameters include PM_{10}, total volatile organic compounds (TVOCs), and MGP related odors. Continuous air quality data are transmitted from three (3) Fixed Air Monitoring (FAM) stations and two (2) Portable Air Monitoring (PAM) stations to AECOM's central air monitoring location 24 hours per day, 7 days per week via a radio telemetry system. The FAM stations are configured with an in-station gas chromatograph which is programmed to automatically speciate for benzene, toluene, ethylbenzene, and xylenes during periods of elevated TVOC concentrations. Data are then automatically compared to site-specific Alert and Action Levels and audible/visual alarms are automatically triggered if/when any exceedance of these limits occurs. Continuous meteorological data are also integrated into the sample collection program to determine upwind and downwind sample stations on a continuous basis.

The combination of fixed and portable stations allowed for flexibility to move the PAMs to different locations in the remediation area on short notice and as onsite work progresses. The AECOM measurement system's portable design has been successful in identifying periods of increasing concentrations and providing alarms prior to reaching the Action Level, successfully reducing the amount of temporary work stoppages.

VAPOR INTRUSION MONITORING

AECOM developed and executed a workplan for performing a site-specific vapor intrusion investigation in accordance with the U.S. Environmental Protection Agency's Office of Solid Waste and Emergency Response Vapor Intrusion Guidance, and with input and review from the Department of the Army, U.S. EPA Region I, and Massachusetts Department of Environmental Protection Agency. The vapor intrusion investigation included the collection, validation, and evaluation of sub-slab vapor, exterior soil vapor, indoor air and outdoor air, using a tiered/multi-phased sampling and evaluation approach, to perform site-specific vapor intrusion assessment and evaluation of the potential health risk associated with occupants of 13 on-site buildings. Building occupants/exposure scenarios include commercial workers, childcare center workers, and children in a childcare facility. Target chemicals included chlorinated volatile organic compounds (VOCs) and petroleum hydrocarbons analyzed by U.S. EPA method TO-15. The vapor intrusion investigation included performing pre-sampling building surveys to document potential indoor and/or outdoor sources of VOCs and preferential pathways through which vapors may enter a building from the subsurface; and the collection of pressure differentials across building foundations.