



AECOM has experienced air emissions measurements staff and maintains an extensive inventory of equipment and instrumentation to meet varying emissions measurement needs. Our large staff of skilled engineers, compliance, permitting, and measurements professionals allows AECOM to understand the regulatory requirements and drivers to deliver accurate and defensible measurement results. As an integral part of a facility's overall environmental management strategy, we bring to each client a unique combination of engineering skills, process knowledge, and regulatory understanding that makes us an industry leader in the measurement of emissions from point, fugitive, and area sources.

AECOM maintains six fully-equipped mobile Continuous Emissions Monitoring trailers and portable monitoring systems that can be shipped to job sites. AECOM's Source Testing practice also maintains an extensive supply of sampling equipment allowing quick mobilization to meet clients' needs; allows for adaptability due to schedule changes; and has a dedicated instrument laboratory to maintain and repair equipment for field-ready results.

AECOM's Air Measurement practice provides a wide range of services to its industrial clients. Industries served include Power Generation; Forestry Products; Agri-Business; Oil and Gas Refining; Petro-Chemicals; Pharmaceuticals; Manufacturing; Hazardous Waste Combustion; Government/Municipalities; and Contaminated Site Owners and/or Excavation Contractors.



Ambient Air Quality and Meteorological Monitoring Services

- Client-Customized AM System Designs and Monitoring Plan Generations (including agency negotiations)
- Engineering Design, Fabrication, and Installation of Monitoring Systems
- Collection, Measurement, and Assessment of: Air Toxics, Site-specific Compounds/ Pollutants, Meteorological
- Tower and/or Acoustic SODAR/LiDAR Data
- Instrumentation Sales, Lease, and Services; including operation, calibration, and maintenance services
- Data Collection, Processing, Validation, and Reporting services;
- Quality Assurance Certification
- Operational Training Services



Emissions Testing Services

- USEPA manual and instrumental methods: PM, PM10, SO2, NOx, CO, etc
- VOC/Metal HAPs Emissions Testing
- Relative Accuracy Test Audit (RATA) Testing - Part 60 and Part 75
- Destruction and Removal Efficiency Testing (Incinerator, Flare, Scrubber, etc.)
- Comprehensive Performance Testing
- US EPA Test Reference Methodology
- Specialty Testing: Ontario Hydro (mercury), dioxins/furans, Method 30B (total and speciated mercury)
- Fugitive Emissions Testing
- Electronic Reporting Tool (ERT) Management
- Third Party HRVOC Audits
- Method 21 Leak Detection
- El Paso Stripper Method
- CEM Quality Assurance/Quality Control (QA/QC) Plans
- Cylinder Gas Audit (CGA) and Linearity Testing
- Online GC and FTIR analysis Services
- Results Documentation Compliance to meet Regulatory Requirements



Continuous Emissions Monitoring (CEM) Services

- CEMS Design, Assembly, Installation, and Maintenance
- Evaluation, Testing, and Problem Solving Resolution – including RATAs, Quarterly Audits, QA/QC Plans
- Data Collection and Software Customization – including design of user-friendly collection and reporting packages using commercially available software
- CEMS Certification – including on-site testing with fully-instrumented, state-of-the-art CEMS trailer
- Regulatory Documentation of Certification
- Training and Audit Support after System Installation and Certification



A Wide Variety of Instrumental Sampling Solutions

- Fourier Transform Infrared Spectroscopy
- Gas Chromatography
- Infra-Red
- Chemiluminescence
- Flame Ionization Detection
- Catalyst
- Fuel Cell
- Paramagnetic
- Optical Gas Imaging

Key Attributes of AECOM's Air Measurement Services include:

- Best in Class Health and Safety Programs
- Extensive staffing and experience in multiple AECOM offices
- Large capital equipment inventory
- On-going servicing, calibration, and maintenance/repair of equipment
- Equipment leasing

Key Potential Drivers for Air Measurement Services include:

FENCELINE AMBIENT MONITORING FOR REMEDIATION, CONSTRUCTION, AND DEMOLITION

- Protect human health and the environment
- Use fence-line monitoring to enhance worker health and safety monitoring programs
- Evaluate the need and effectiveness of vapor and/or dust controls
- Document fence-line air quality during remedial, construction, and demolition activities
- Provide risk management and public confidence during site remediation tasks

AMBIENT AIR MONITORING TO SUPPORT DISPERSION MODELING AND/OR PERMIT NEEDS

POINT SOURCE EMISSIONS TESTING

- Title V, New Source Performance Standards (NSPS) and Maximum Available Control Technology (MACT) periodic compliance tests (e.g., Mercury and Air Toxics rule, Boiler MACT, Combustor MACT, etc.)
- EPA Section 114 Information Requests
- Engineering Evaluations for pollutant control.
- Preliminary compliance evaluations in advance of a new regulatory compliance deadline



National Grid: Fenceline Monitoring Networks at MGP Site Remediation Projects

AECOM has supported National Grid since 2008 with several high-profile remediation projects across Long Island and the New York City area since 2008. Support includes development of the fenceline air monitoring plans in accordance with New York State Department of Health Guidance as well as the implementation of the fenceline air monitoring plans during remedial activities. Measurement parameters include respirable particulates, total VOCs, and integrated VOCs using US EPA analytical method TO-15. Speciation for the "BTEX" compounds was also performed using onsite field gas chromatographs at up to six fixed air monitoring locations during periods that TVOC concentrations exceed program action levels. Portable, battery-operated Air Monitoring stations, plus hand-held air monitors were also periodically used to measure fenceline concentrations for TVOCs, particulates, HCN, odors and naphthalene during certain remedial activities. Continuous data were transmitted to a central location via radio telemetry and Fixed Fenceline Air Monitoring Station compared to site-specific action limits where automated audible and text/email message alarms were triggered as needed. The AECOM fenceline measurement systems (both fixed and portable AM stations – see photos) were designed to provide simultaneous monitoring of several chemical compounds and pollutant media. The systems were also designed to be transportable so that they may be reassigned to different locations in the remediation area on short notice and as onsite work progressed.



Refinery Client, California – Multi-Station Fenceline Monitoring

AECOM was contracted by a large west coast petroleum refinery to evaluate fenceline air monitoring technologies for a number of petroleum related air pollutants. Following this project AECOM was awarded the program to design, install and operate a fenceline monitoring system as a pilot study prior to the installation of a permanent multi-station fenceline monitoring program.

The design phase of the pilot study required AECOM to put together a team of consulting experts in the various technical disciplines of optical remote sensing by FTIR. A monitoring plan was developed and a two station FTIR network was installed along, upwind and downwind of refinery fencelines. The site locations were selected to provide representative data from pollutants moving onto the refinery site as well as the refinery's contribution to the air quality being transported away from the facility. The sites were also established as to be protective of two nearby communities and sensitive receptor sites. On-site meteorological tower data was incorporated into the design so that the plant contribution to air pollutants could be determined as well as the potential for dispersion modeling and the development of real time wind and pollution roses.

The FTIR operating computers were tied to a local area network and accessible via remote telephone dial-in modem to provide additional pathways to monitor the system. Due to the difficulty in running data cables and telephone cables overland at a refinery setting, AECOM took advantage of state-of-the-art technology, using cellular data modem transmitters and wireless radio frequency signal transmitters, which also saved the client the high cost of installing utility poles and wire conduit. As a result of this pilot study, the client was able to obtain the real time and historical emissions data and meet an obligation to the surrounding communities and their good neighbor policy. The design of the permanent remote sensing system will consider the experience gained during the pilot study and meet all the objectives of the program.



Marathon Refinery, Detroit, Ohio and Kentucky – Fenceline Monitoring and Emissions Testing

AECOM has provided support with various Environmental Projects at Marathon in Detroit, Ohio and Kentucky facilities.

FENCELINE MONITORING: AECOM is the industry leader in the design, installation and operation of benzene air monitoring programs for refineries. AECOM currently operates a real time fence line monitoring network for benzene at the Marathon Galveston Bay refinery. AECOM has designed and operated fence line air monitoring networks complying with the refinery sector fence line air monitoring rule for several Marathon refineries in the western US.

AECOM staff were also directly involved with the development and testing of US EPA's fenceline benzene air monitoring method – Method 325. AECOM provides air quality regulatory analysis and advocacy on behalf of Marathon refineries in Texas and Utah.

EMISSIONS TESTING: AECOM has performed emissions testing on the delayed Coker units (DCU) steam vents at Marathon's Detroit refinery each year since 2013. Emissions testing of the DCU steam vents requires specialized procedures and equipment that AECOM was instrumental in developing for this application. AECOM has successfully and safely provided testing services for particulate matter (PM), VOCs, and H2S emissions and has worked closely with Marathon and the state regulatory agency to provide technical support and defensible results.

We have also performed DCU Vent testing at Marathon's Garyville refinery in 2010 and 2015, and conducted testing under the EPA's Information Collection Request (ICR) at the Garyville Refinery in 2011.

Duke Energy – Fourteen Facilities in North Carolina, Ohio, Kentucky and Indiana

AECOM Environment was awarded a major contract to provide air emissions testing and fuel analysis services for fourteen Duke Energy electric generating stations and thirty-four electric generating units operated by Duke Energy. The testing program was initiated in support of a US EPA Information Collection Request (ICR) to obtain air toxics data to develop a new Maximum Achievable Control Technology (MACT) Standard, under Section 112(d) of the Clean Air Act, for the control of hazardous air pollutants from coal- and oil-fired electric generating units. Subsequently, Duke Energy awarded AECOM over 50 separate projects designed to collect data to support their efforts to achieve compliance with the then proposed Electric Generating Unit (EGU) MACT which eventually became the Mercury and Air Toxics Standards (MATS) rule. Air Measurements' Staff from AECOM's Chelmsford, MA, Syracuse, NY, and Fort Collins, CO offices supported the field testing programs.



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