REGULATORY ASSISTANCE

Ambient Air Quality and Meteorological Monitoring Services

Trinity Consultants

Founded in 1974, Trinity Consultants helps organizations overcome complex, mission-critical challenges in EHS, engineering, and science through expertise in consulting, technology, training, and staffing. We support clients in geographies worldwide and across a broad range of sectors including industrial, energy, manufacturing, mining, life sciences, and commercial/institutional.

Trinity's ambient air quality and meteorological monitoring services deliver accurate and defensible ambient air quality and meteorological data that can be used in support of environmental assessments, compliance, and permitting.

Our monitoring staff have over 150 years of combined experience and have installed and operated approximately 1,000 meteorological and air quality sites nationwide. We offer turnkey solutions that are technically proven cost-effective, regulatory compliant, and designed to meet your specific monitoring requirements.

Our solutions include customized software for data monitoring, retrieval, analysis, reporting, and presentation. Only instrumentation which has proven to be of the highest quality and reliability are recommended and installed by our professionals.

Trinity's quality assurance and quality control programs are designed to ensure that your monitoring data meets U.S. EPA, state, and local requirements for completeness, representativeness, precision, and accuracy.

Our experienced auditors also conduct meteorological and air quality performance and system audits using EPA and other applicable regulatory guideline methods, and NIST-traceable reference standards. Our customized software for automated data evaluation and validation allows clients to quickly identify monitoring problems, minimize data loss, and enhance data quality.

Trinity assists organizations with a full range of air quality and meteorological monitoring solutions including:

- Monitoring Services
  - Complete station siting services
  - Regulatory agency negotiation
  - Monitoring and quality assurance plan development
  - Turn-key equipment installation and calibration
  - Multiple remote communication options including cellular, satellite, telemetry, and meteosat
  - Automated 24/7 data retrieval
  - Automated zero span and precision verification
  - Complete data management and validation
  - Official data reporting in state and EPA formats
  - Secure client access to real-time data dashboard with extensive plotting, analysis, and notification features
  - Iterative modeling site assessment
  - Automated data evaluation and validation
  - Complete data requirements rule (DRR) SO_2 monitoring services
  - Community-based monitoring
  - Construction and remediation site monitoring
  - Design and implementation of air quality studies
  - Optical Gas Imaging (OGI)
- Monitoring Parameters
  - Continuous monitoring of criteria pollutants (NO_2, O_3, SO_2, CO, PM_{10}, $PM_{2.5}$)
  - Meteorological towers from 2-meter tripods to 100-meter multi-level towers with solar powered option
  - Air toxics sampling of mobile, industrial, and biogenic sources
  - Methane and non-methane hydrocarbon monitoring
  - Canister and DNPH sampling
  - Meteorological and air quality system and performance audits
  - EPA-approved monitoring methods
  - EPA, NIST and A2LA traceable reference standards
  - Ultrafine particulates (PM_1, $PM_{0.1}$)
  - Automatic Gas Chromatography (Auto-GC)

Ambient Air Quality Monitoring

Trinity experts have extensive background in site selection, equipment procurement and acceptance testing, equipment installation and integration, routine field operations, training of site personnel, calibration and maintenance, quality control checks, data management, data validation, data formatting and reporting, quality assurance performance and systems audits, and emergency trips.

Our skilled field personnel provide top of the line calibration that is critical to determine the equipment's precision and accuracy. Automated zero, span, and precision checks are performed to verify the operational status of the monitoring system.

Meteorological Monitoring Services

Trinity's meteorological monitoring services include installation of meteorological towers from 2 to 100 meters tall to collect multi-level measurements of horizontal and vertical wind direction and speed, temperature, delta-temperature, relative humidity, barometric pressure, solar radiation, net radiation, and precipitation. Meteorological towers can be completely powered with solar panels allowing for operation in remote locations and removing the logistics and costs associated with power drops.

The goal of these projects is to obtain meteorological measurements to be used in future EPA, state, and Nuclear Regulatory Commission (NRC) permitting, and dispersion modeling analyses. Calibration and quality assurance performance and system audits are provided to ensure the equipment's precision and accuracy.

Complete Data Quality Assurance and Management Solutions

To preserve data integrity and high data recovery, Trinity conducts continuous (24/7) interrogation and download of monitoring data through computational and visual scanning of the data by trained meteorologists and air quality specialists. This approach allows us to identify problems quickly so that a site technician can be dispatched promptly, if necessary.

Data validation is performed in accordance to established guidance. Quality assurance project monitoring plans are developed and provide the basis for the monitoring operations. These plans receive regulatory agency approval prior to the implementation of the monitoring program.

Auditing

Performance audits are part of a comprehensive air monitoring quality assurance program to validate and document the data accuracy of the measurement system. Trinity auditors have performed hundreds of system and performance audits on every type of meteorological sensor and air quality analyzer in operation. Our auditors, some certified through EPA's PEP audit program, utilize NIST, A2LA, or EPA certified reference and transfer standards. All audits are an independent assessment and are performed in accordance with EPA guidance.

Community-based Monitoring

Trinity has successfully designed and implemented several community-based monitoring projects for tracking and quantifying criteria pollutant impacts, photochemical and secondary formation pollutant, odor identification, and source culpability studies. Many community-based monitoring programs include the use of low-cost sensors or near-reference monitors to supplement the existing agency networks or saturate an area for hot spot identification. The successful implementation of a community-based monitoring program is based on a well-defined scope and plan, a realistic expectation of sensor performance and data usability, and a thorough understanding of sensor limitations and comparability with reference methods.

Data Analysis and Interpretation

Data collection is only the beginning of a good air quality monitoring program. Trinity experts assist clients in using diverse analytical methods to review and interpret data to make meaningful and relevant conclusions. Part of the service offering includes real-time data dashboards (accessed at MyTrinityData.com) to aid in the understanding of measured observation data in real-time. Furthermore, the MyTrinityData dashboard can notify stakeholders of conditions that require action to be taken in real time.

Ambient Monitoring Lab

Trinity operates a 1,200 square foot, state-of-the-art ambient and meteorological monitoring laboratory. The lab is used to bench check and integrate ambient and meteorological equipment and for site telemetry prior to deployment. It also contains our inventory of spare parts for ambient analyzers and meteorological instrumentation.

Why Choose Trinity

Trinity built its reputation for excellence on air quality expertise. Leveraging our 45+ years of experience with air quality regulatory issues, our national and international presence, and our deep expertise in monitoring, uniquely qualifies us to provide a monitoring solution that is robust, accurate, and appropriate for specific client needs.

For more information about how we can help your organization, please contact us at 800.229.6655.

ISO 9001:2015 certified at our corporate office in Dallas, Texas

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