

INNOVATIVE SOLUTIONS FOR THE UTILITY AND INDUSTRIAL POWER INDUSTRY

Whether you are faced with the challenges of mercury monitoring, NO_x reductions, increasing boiler efficiencies or reducing greenhouse gas emissions, put Clean Air Engineering's nearly 35 years of delivering enhanced environmental and financial performance to work for you.

We offer a full spectrum of combustion services including:

- Regulatory/Compliance Consulting
- Boiler and Gas Turbine Optimization
- Stack Testing
- Thermal Performance Testing
- APC Efficiency Determination
- Cooling Tower Performance
- Training



COMPLIANCE MANAGEMENT

Environmental compliance doesn't just happen; it is planned and managed like any other business function. Successful compliance management means establishing achievable objectives based on good engineering practice. It means getting the right data to the right people at the right time. It means a tighter integration of the environmental function into operations. CleanAir can help design and implement a defensible, achievable compliance program that allows responsible officials to certify compliance with confidence.

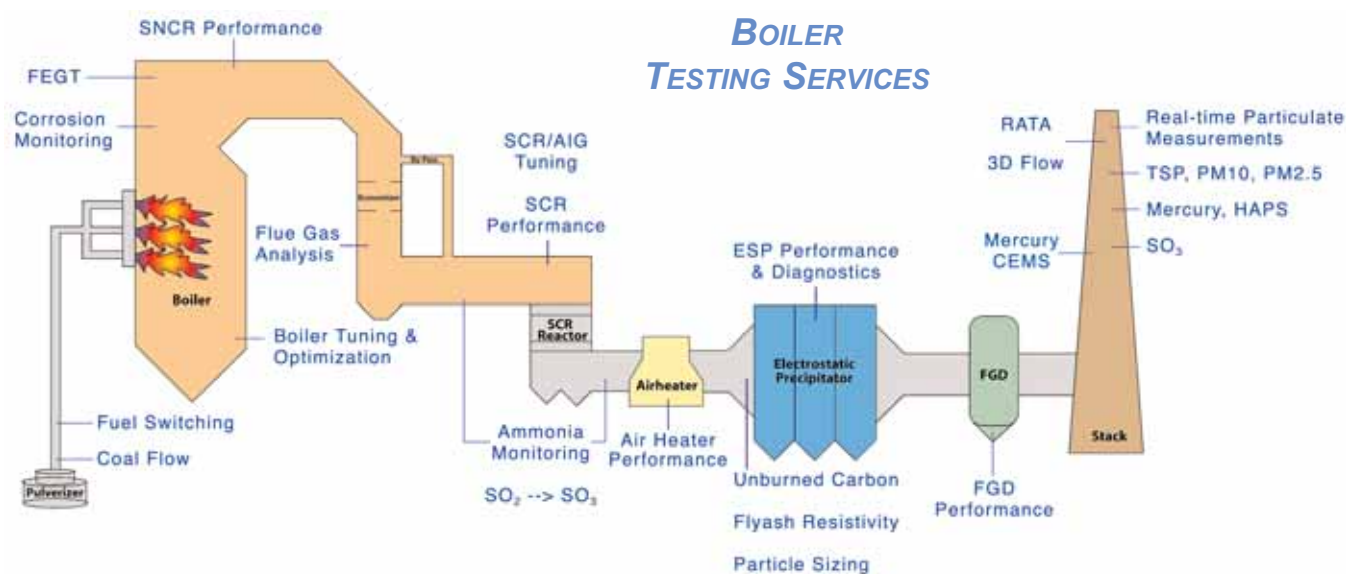
Our Compliance Management services include:

- Compliance Assurance Monitoring (CAM) Plans
- Compliance Audits
- Control Technology Assessments
- Regulatory Agency Permitting and Negotiations
- Due Diligence Investigations
- CEMS Monitoring and QA/QC Plans

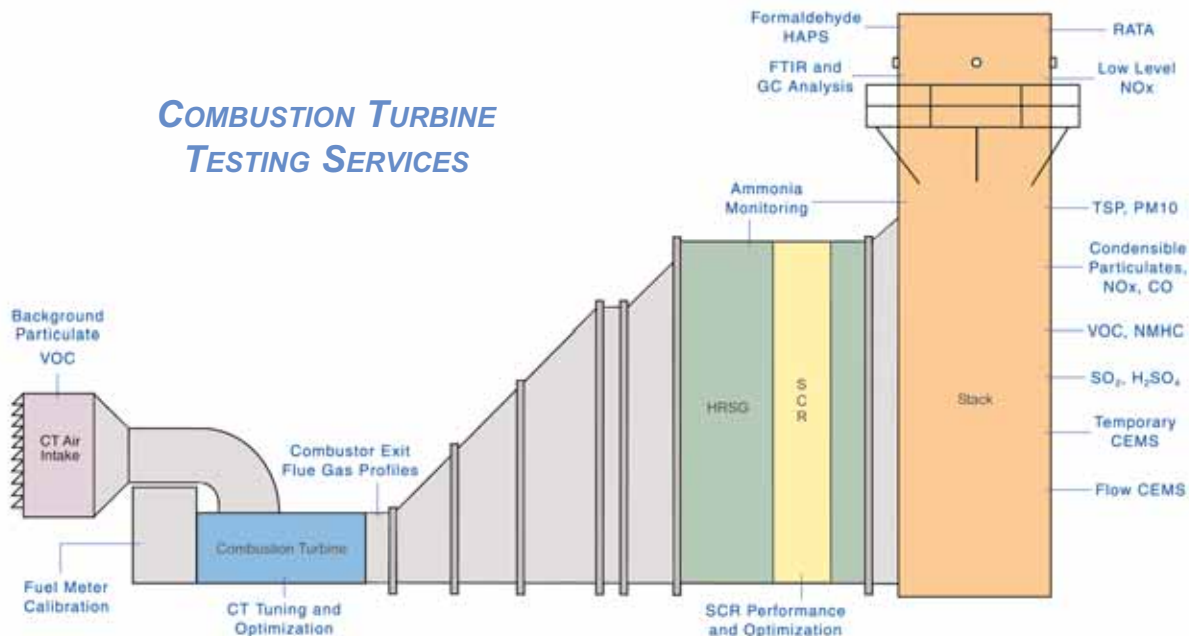
FIELD MEASUREMENT SERVICES

Key components in any compliance program are collecting accurate, defensible emission data and optimizing equipment performance. CleanAir has an established reputation for excellence on field testing projects of all sizes, ranging from boiler efficiency testing to SCR baseline studies and optimization to annual compliance determinations. From routine EPA and ASME method testing to on-line spectrographic analysis, CleanAir has the technical expertise to meet your monitoring requirements.

As the figures below illustrate, CleanAir's suite of field measurement services find applicability to all facets of power generation.



COMBUSTION TURBINE TESTING SERVICES



BOILER, SNCR AND SCR OPTIMIZATION

CleanAir can perform flue gas profiling for diagnostic and optimization purposes faster than traditional sampling methods by using our MASS - Multi-Point Automated Sampling System. The heart of the system is the ability to rapidly profile the flue gas distribution over large measurement areas.

The MASS is based on PLC-controlled sample selection modules that direct the flue gas to a mobile continuous emissions monitoring system for NO_x, O₂, CO₂ and CO analysis.



APPLICATIONS

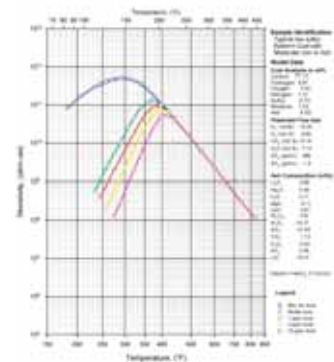
- Ammonia Injection Balancing
- SCR / SNCR Optimization
- Catalyst Management
- Combustion Diagnostics
- Boiler Tuning
- System Commissioning

The MASS can be configured to measure a 128-point sample grid in less than 15 minutes.

FLYASH CHARACTERIZATION SERVICES

CleanAir's particle characterization laboratory provides flyash resistivity and particle size distribution analysis. A combination of this laboratory data and computer modeling is used to optimize the flyash collection efficiency of electrostatic precipitators. It can also predict the ESP performance over a wide range of flue gas conditions, such as varying temperatures and SO₃ concentrations. The laboratory routinely performs the following:

- Resistivity / particle characterization
- Coal-switching studies by evaluating the resistivity of select coals and blends to predict ESP collection performance
- Studies on the effect of flue gas conditioning to improve ESP collection
- Increasing the generating output of units derated due to opacity



CLEAN AIR ENGINEERING

THE CLEANAIR ADVANTAGE

The strength of CleanAir's organization is its solid base of professionals with air emissions testing, combustion, flue gas cleaning, engineering, regulatory, and analytical experience; all committed to developing and implementing cost effective solutions to air pollution and combustion problems of boilers and gas turbines.

In addition, CleanAir has extensive equipment resources maintained through CleanAir Instrument Rental and CleanAir Express. Not only do we provide rental of state-of-the-art monitoring instrumentation, we also have in-house manufacturing capabilities for customized sampling equipment such as HVT probes and multi-point sampling grids. For nearly 35 years, by delivering more than data, we have provided high value to our customers by turning environmental costs into bottom line profits.



ENVIRONMENTAL CONSULTING

- Environmental Strategic Planning
- Permitting and Permit Implementation
- Compliance Reporting
- Audits / Operational Review
- CAM Plans
- Training



PROCESS ENGINEERING

- APC Equipment Specification, Optimization and Troubleshooting
- Combustion / Boiler Tuning
- Emissions Reduction Strategy
- Performance Testing
- Fuel Switching Studies



CLEANAIR INSTRUMENT RENTAL

- Continuous Emission Monitoring Systems
- Calibration Gases
- Data Acquisition
- Air Monitoring Instruments
- Instrument Repair



CLEANAIR EXPRESS EQUIPMENT SALES

- EPA Reference Method Test Equipment for Particulate, SO₃ and Mercury
- Emission Measurement Supplies
- Test Method and Equipment Training
- Sample Gas Delivery Systems
- Portable Combustion Analyzers



MEASUREMENT AND ANALYTICAL SERVICES

- Stack Testing
- Emissions Inventories
- Emissions Performance / Guarantee Testing
- Real-time Particulate Measurement
- Plume Studies
- Particle Characterization / Resistivity

CORPORATE HEADQUARTERS

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