

COOLING TOWER TESTING AND CONSULTING SERVICES

Clean Air Engineering is a leading independent test agency for cooling tower evaluations. CleanAir is licensed by the Cooling Technology Institute (CTI) to perform both thermal performance and drift emissions testing. CleanAir routinely performs a wide variety of cooling tower testing services including:

- Thermal Performance Testing/Evaluation
- Drift Emissions Consulting and Testing
- Plume Abatement Testing
- Sound Emissions Testing
- Water Flow Rate Measurement including Dye Dilution Method



We are active on many CTI and ASME test code-writing committees, which maintains our in-depth knowledge of the heat rejection industry.

THERMAL PERFORMANCE EVALUATIONS

Cooling tower thermal performance has a direct impact on the performance of power plant, process production, and HVAC cycles. For this reason, new or rebuilt cooling towers are tested to ensure that manufacturer's guarantees have been met and that the tower will not limit or bottleneck the rest of the system. CleanAir conducts rigorous thermal performance tests in accordance with CTI ATC-105 and ASME PTC-23 to ensure that new or rebuilt towers meet their design specification.



Over time, cooling tower performance declines can reduce plant production, efficiency and profitability, making regular cooling tower performance benchmarking an important plant optimization tool. For the utility and process industries, CleanAir conducts heat rejection cycle analyses on cooling towers, condensers, heat exchangers and pumps to identify the sources of higher turbine backpressure, lost capacity or heat exchanger performance.

PLUME ABATEMENT TESTING

Conventional "wet" cooling towers generate visible condensation plumes that form when the hot saturated cooling tower exhaust plume cools in the atmosphere. Plume-abated cooling towers may be installed near airports or highways or in locations where industry and residential areas co-exist and where visible plumes may be objectionable. CleanAir performs tests of plume-abated towers under the guidelines of CTI ATC-150 to determine whether the tower will form a condensing plume at the thermal design point.



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COOLING TOWER SOUND EMISSIONS

CleanAir performs sound emissions tests for cooling towers to determine that permitted limitations for noise are not exceeded. These limits can be problematic as new facilities are being installed on ever decreasing plot sizes with equipment installation close to property lines. CleanAir personnel recently participated in the revision of the CTI Code ATC-128 which addresses the operational and environmental impacts on cooling tower noise emissions.

DRIFT EMISSIONS TESTING AND CONSULTING

Cooling towers emit large volumes of liquid emissions containing the same chemical constituents as the circulating water. These liquid emissions, called drift, become a regulated pollutant when the liquid droplets evaporate to form crystals of particulate matter less than 10 microns in diameter (PM10).

CleanAir's staff has a long history of cooling tower drift emissions testing and consulting. CleanAir is the only company with the capacity to perform both the Heated Glass Bead Isokinetic (HBIK) and the Sensitive Paper (SP) test methods that determine total mass emission rates, drift droplet size distributions and PM10 emissions.

In addition to drift testing, CleanAir routinely writes drift emissions test protocols for submission by our clients for regulatory approval.



WATER FLOW RATE MEASUREMENTS

CleanAir performs water flow rate measurements required for cooling tower thermal performance, sound, plume abatement or drift emissions tests via calibrated Pitot tube traverse of the main supply pipe or risers at the cooling tower. CleanAir can perform Pitot tube flow measurements in pipes up to 20 feet in diameter.

CleanAir also has the unique capability of water flow rate measurement via dye-dilution techniques for applications where Pitot taps cannot be installed in a straight run of pipe. Dye-dilution flow measurements are especially well suited for "once-through" applications to determine pump, condenser or helper cooling tower flow rates. The dye-dilution measurement technique is accepted by ASME and CTI code level tests.

PERFORMANCE GROUP

Clean Air Engineering
7936 Conner Road
Powell, Tennessee 37849
Phone: 800-208-6162
Fax: 865-938-7569
Website: www.cleanair.com

CORPORATE HEADQUARTERS

Clean Air Engineering
500 W. Wood Street
Palatine, Illinois 60067
Phone: 800-627-0033
Fax: 847-991-3385
E-Mail: contact@cleanair.com
Website: www.cleanair.com

INTERNATIONAL OFFICE

France
Centre Etoile Valentine, Tour B2
Traverse de la Montre
13011 Marseille, France
Phone: 011-33-4-91-87-82-10
Fax: 011-33-4-91-87-82-19

REGIONAL OFFICES

Pennsylvania
Parkway West Industrial Park
1601 Parkway View Drive
Pittsburgh, Pennsylvania 15205
Phone: 800-632-1619
Fax: 412-787-9138

Texas
321 Century Plaza
Suite 130
Houston, Texas 77073
Phone: 800-723-0362
Fax: 281-443-1806

