Presentation to IEST
WG036: Testing Fan-filter Units

FFU Demonstration Project

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November 2005

Demonstration Projects

Phase 1 - Testing the draft procedure

Phase 2 - Develop information on the performance of fan-filter units

Fan-filter Units

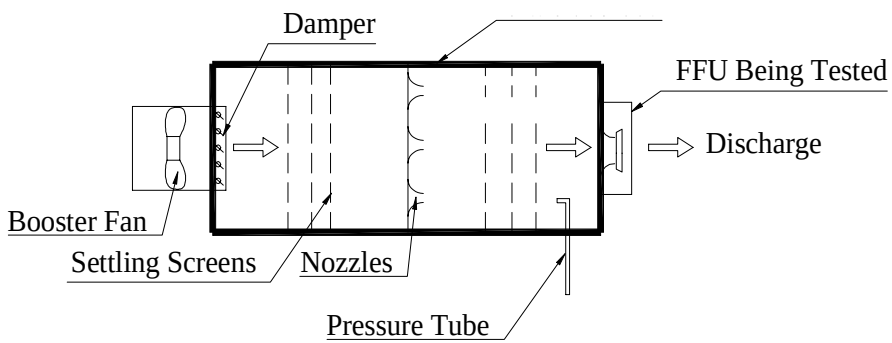
- **Project support**
  - Calif. Energy Commission and PG&E
  - Industrial Technology Research Institute (ITRI)
  - Suppliers, designers, and users
  - Institute of Environmental Sciences and Technology (IEST)

Fan-filter Units

- **Purpose**
  - Refine the procedure and improve the robustness and cost-effectiveness of the method
  - Produce comparable performance information and identifies most efficient and functional FFUs
  - Stimulate design and applications of energy efficient FFUs

Fan-filter Units

- **Demonstration tests completed at PG&E and ITRI facilities**
- **Conceptual device layout**



Key Updates

- **Demonstration Phase I**
  - Test the draft method at PG&E and ITRI facility using an identical FFU

- **Demonstration Phase II**
  - Test rig design and set up at LBNL
  - Fine-tuning the method and further R&D
  - Develop information on units' performance
  - Possible future IEST RP integration

Issues and Challenges

- Airflow rate measurements
- Pressure measurements
- Power suppliers and measurements
- Device calibration and uncertainties
- Size of testing rig
- Integrity of the testing system, e.g., leak
- Robustness of the methods/rig
- Additional parameters, e.g., material cost

Test Rig Pictures

Layout

Layout

Layout

Turning

Assisting fan

Inside the duct

Inside the duct

Flow Nozzle

Power meter

Pitot tube

Traverse

Data acquisition

Data acquisition