

7.18 Fundamental Combustion Research Program

Objective: To support low-emission combustion modification technology and low-NO_x burner development with well-directed research of a fundamental nature. The chemical, physical, and aerodynamical phenomena important in the processing of fuel-bound nitrogen to NO_x and in the formation of particulate and organic species especially polycyclic organic matter, will be established.

Approach: The program management structure includes a master contract with the prime contractor and a number of sub-contracts, of varying duration, on specific tasks. Presently, the program is split nearly evenly between prime contract work and work by the sub-contractors. Research grants and cooperative agreements are utilized as appropriate. In addition, an in-house R & D effort augments the various contractual studies.

Rationale: The ultimate goal of the program is to provide a well-substantiated means of estimating the lowest achievable NO_x emissions from current and future combustors. Models are required also for POM generation during combustion processes to guide effective control technology development for these emissions as well.

Resources (\$1000's):

FY81	FY82	FY83	FY84
1500	250	100	150

Milestones:

- Special report on continuous monitoring of hydrocarbons as a measure of destruction and removal efficiency by hazardous waste incinerators; 12/81
- Special project report on chemical kinetic parameters controlling NO_x reduction by reburning; 4/82
- Special report on drop-size distribution from heavy oil atomizers for application to low-NO_x EOR burner systems; and 12/82
- Complete initial study of advanced aerodynamic removal techniques for coal ash from cyclone type burners. 12/82

Contacts: W.S. Lanier, IERL/RTP Project Officer, 629-2432