

7.17 Emissions Control by Combustion Modification for Industrial Process Combustion Equipment

Objective: The objective is to develop and apply advanced combustion modification technology to industrial process combustion equipment for emission control and efficiency improvement.

Approach: Results obtained from promising laboratory and sub-scale tests will be applied to full-scale equipment. In addition to monitoring emissions during combustion modification tests, equipment efficiency and quality of the product produced will be evaluated. Combustion modification technology found to be successful for boilers will be adapted as necessary, and will be evaluated on selected types of industrial process equipment.

Rationale: Much of the combustion modification technology previously developed to control emissions from industrial and utility boilers is directly applicable to other stationary combustion equipment. Since NO_x emissions are very high from petroleum process heaters, cement kilns, steel furnaces, and glass furnaces, it is desirable to determine the effect of combustion modification for NO_x control from these sources. Preliminary tests using forced-draft staged air lances on petroleum refinery heaters have resulted in 71% NO_x reductions for gas-fired units, and 53% NO_x reductions for oil-fired units, while providing a 5% fuel savings.

Resources (\$1000's):

FY81	FY82	FY83
340	510	0

Milestones:

- ° Complete NO_x control assessment for refinery process heaters; 3/83
- ° Complete NO_x control assessment for steel furnaces; 6/83
- ° Complete NO_x control assessment for cement kilns; and 12/83
- ° Complete NO_x control assessment for glass furnaces. 3/84

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