

7.16 Application and Assessment of Combustion Modification Concepts for Coal-Fired Stoker Boilers

Objective: The major objective of this project is to conduct a study of methods for reducing emissions and improving the performance of industrial and commercial coal-fired stoker boilers.

Approach: A two-phase project was specified. Phase I involves the application of modifications such as overfire air, flue gas recirculation, and two-staged combustion to two spreader stoker boilers. Phase II involves the application of these same techniques to the smaller mass-fed stoker boilers.

Rationale: Coal-fired stoker boilers account for about 5 to 6% of the national stationary source NO_x emissions. In addition, mutagenic and carcinogenic organic compounds are emitted from these sources. Carbonaceous particulate and opacity problems also exist. Combustion modifications have been effective in controlling these emissions in prior field testing work. For example, preliminary tests of combined flue gas recirculation/staged combustion have achieved NO_x reductions of 50-60 percent in a 100,000 lb steam/hr spreader stoker. Assessment for optimized modifications are needed.

Resources (\$1000's):

FY81	FY82	FY83
0	231.9	0

Milestones:

- ° Complete final project report for the first spreader stoker/modification system; and 8/82
- ° Complete final project report for the second spreader stoker/modification system and the Application Guidelines Document for spreader stokers. 8/83

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