

7.4 Development/Demonstration of an Adipic Acid-Enhanced Limestone FGD Process

Objective: To improve the performance, reliability, and cost-effectiveness of the first generation FGD technology (lime/limestone wet scrubbing) used for control of SO_x emissions from coal-fired boilers.

Approach: Complete pilot/prototype/full-scale investigations using chemical additives such as adipic acid in order to improve the performance, reliability, applicability and economics of lime/limestone FGD systems. Continue laboratory scale evaluations to address the remaining technological issues. Emphasis will be on process performance improvements in the areas of alkali utilization, SO₂ removal efficiency, waste disposal properties and water management. Support studies assessing economics of site-specific retrofit applications and secondary environmental impacts will also be undertaken. The range of applicability to both new and existing systems will be determined. The performance of any commercial applications of the technology shall also be monitored during their first year of operation.

Rationale: The adipic acid-enhanced limestone FGD process has been demonstrated on a full-scale operating utility boiler system. However, it is necessary to stimulate industry to bridge the gap between demonstration and commercialization of the technology. It is also necessary to allay any residual concerns the industry may have about the technology. The primary stimulant is obviously economic benefit, and the primary concern to date is environmental impact. Therefore, by addressing these areas, the technology should proceed to commercialization as rapidly as possible and would be available as a control technique for an acid rain control strategy.

Resources (\$1000's):

FY81	FY82	FY83
570	200	50

Milestones:

- ° Complete report on prototype (10 MW) evaluation at EPA's Shawnee Alkali Scrubbing Test Facility; 2/82
- ° Complete report on the full scale (20 MW) 2/82 demonstration at an industrial boiler facility; 2/82
- ° Publish Capsule Report on Adipic Acid Enhanced Limestone FGD Processes; 5/82