

7.5 In-House Research & Development on FGD Processes

Objective: Evaluation of new concepts and developments in FGD technology through in-house research designed to improve scrubber performance, reliability, cost-effectiveness, and energy efficiency.

Approach: Use existing EPA in-house pilot-scale FGD facilities to acquire data on improved variations of limestone and dual alkali FGD processes. Research will include advanced technologies such as organic acid enhancement of limestone scrubbing and sodium-based dual alkali scrubbing using limestone regenerants. Evaluations of problems confronting operating FGD systems will also be conducted, such as the impact of high chloride concentrations on FGD process chemistry. Cooperative projects (including cost-sharing) with vendors and utility companies will be emphasized in addressing these real world problems. In addition, modification of the in-house pilot plant facilities will be pursued to provide capability to evaluate spray-dryer/baghouse processes, which are potentially more cost-effective than the traditional wet scrubbing processes for SO₂ control.

Rationale: In-house pilot-scale research on FGD technology is a cost-effective approach for screening and evaluating new concepts and process modifications prior to more costly large scale development, demonstration, and/or commercial application.

Resources (\$1000's):

FY81	FY82	FY83
650	320	300

Milestones:

- ° Complete pilot studies on the effect of high chloride concentrations on the process chemistry of limestone FGD systems; 6/82
- ° Complete pilot studies of sodium-based dual alkali scrubbing using limestone regenerants; 9/82
- ° Complete pilot studies using organic acids (such as adipic or glycolic) to enhance the performance of alkaline ash scrubbing systems; 1/83