SO_2 ABATEMENT WITH THE TAIL-END LIMESTONE SCRUBBING PROCESS. John M. Craig, Ph. D., Southern Services, Inc. P.O. Box 2625, Birmingham Alabama, 35202; M. Dean High and Burke Bell, Engineering Science, Inc. 600 Watergate, 600 New Hampshire Avenue, N.W. Washington D.C. 20037

A 1500 CFM mobile pilot plant was operated in an open-loop configuration to evaluate the Zurn Industries, Inc. scrubber in the tail-end limestone wet scrubbing process for SO_2 abatement. The pilot plant was installed on both oil-fired and coal-fired power plants. Various operating parameters associated with SO_2 abatement were studied in the pilot plant in a series of statistical designs. Operating parameters investigated included: pressure drop, gas flow rate, stoichiometry, slurry concentration, particle size and reactant type. The reactant types included: coral marl, Fredonia Valley limestone, dolomite aragonite, lime and precipitated calcium carbonate. Results from the statistical design indicate that pressure drop, stoichiometry, and gas flow rate had significant influence upon SO_2 removal efficiency, Coral marl and Fredonia Valley limestone removed 65-75 percent of the SO_2 depending upon the level of the various operating parameters. The other calcium-based reactants provided SO_2 removal efficiencies between 45-90 percent depending upon reactant and level of operating parameters. The Zurn Industries, Inc. scrubber had no operating set-backs due to scale formation in the scrubber system and it appears to offer an alternative for reducing the SO_2 emissions in a variety of industries.