

Sig Lawrence, Bob Morris, Mike Tayyabkhan, Charlie Ware.

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Members of the AIChE who are interested in joining the division should contact Bob Lackmeyer, Acting Treasurer, Standard Oil of Ohio, Midland Bldg-215CB, Cleveland, Ohio 44115; phone (216)-575-5002.

ASPEN PROJECT UPDATE - Feature Article by L. B. Evans and P. W. Gallier

ASPEN is a major, new process simulator for engineering fossil fuel conversion processes. As an "Advanced System for Process Engineering" this simulator is aimed at helping the U.S. Department of Energy (DOE) to do a better and more efficient job of getting fossil fuel conversion plants into place.

With the need of the U.S. to find alternative energy sources to oil and gas for the future, the DOE sees large expenditures needed for fossil energy process development. Tough decisions will have to be made between alternative processes. Tradeoffs must be analyzed involving process technology and economics. The ASPEN system is intended to help in providing a rapid, analytical tool which would permit a consistent means of evaluating these processes.

Under development at MIT, the ASPEN system is to have new capabilities to model process operations found in conversion plants, such as coal handling and coal conversion reactors, as well as conventional vapor-liquid processing. The system is being designed to be flexible to allow variable types of streams and to allow insertion of specific, even proprietary, process models. A key feature will be its ability to estimate plant costs and to make economic analyses for plant investment.

Funded by DOE at \$3,285,000 for three years, the project is now into its second year and well underway. The principal investigator is Prof. Lawrence B. Evans at MIT. The Project Manager, Dr. Paul W. Gallier, is on loan from Monsanto Co. The principal staff is composed of nine people with industrial experience and some in post-doctoral positions. They are assisted by a large number of MIT students who are working on the Project. At DOE, the Project Manager is Dr. Carlos W. DiBella. Part of the work is being done at the University of Pennsylvania under a subcontract to co-investigator Professor Warren D. Seider.

Functional Specifications

Recent work on the project has been to complete a document detailing the functional specifications of ASPEN. These are the functions ASPEN will perform without dealing with how they will be done. A summary of these specifications is made here.

ASPEN will be capable of providing detailed heat and material balances and detailed economic analyses for process plant construction and operations. ASPEN will provide an extensive data base for coal physical properties, routines for solids handling, and routines for waste product recovery systems.

Building-block subroutines will be developed to model all of the common unit operations in fossil energy processes. About seventy-five unit operations models are planned. These include stream addition, steam splitters, distillation column, adsorption columns, extraction units, pumps, compressors, expanders, turbines, equilibrium flashes, heat exchangers, heaters/coolers, condensers, furnaces, cyclone separators, crushers, grinders, screens, kilns, fluidized bed heat exchangers, filters, centrifuges, driers, electrostatic precipitators, and crystallizers.