

## 1. INTRODUCTION

The U.S. Department of Energy (DOE) has established a program to "foster an adequate supply of energy at a reasonable cost," in accordance with the National Energy Policy Plan IV (NEPP IV). A cost effective direct coal liquefaction program sponsored by the Pittsburgh Energy Technology Center (PETC) is an integral part of NEPP IV.

The overall goal of the coal liquefaction program is "to develop the scientific and engineering knowledge base with which industry can bring economically competitive and environmentally acceptable advanced technology for the manufacture of synthetic liquid fuels from coal.

The present assignment from PETC is undertaken by Bechtel (in collaboration with Amoco as the main subcontractor) to develop a computer model for a baseline direct coal liquefaction design based on two stage direct coupled catalytic reactors. Specifically, the scope of work calls for the development of:

- 1) a baseline design based on previous DOE/PETC results from Wilsonville pilot plant and other engineering evaluations,
- 2) a cost estimate and economic analysis, and
- 3) a computer model incorporating the above two steps over a wide range of capacities and select process alternatives.

In this study, the Topical Reports are also the Task reports. This Topical report addresses the baseline design development (Task II) of the direct coal liquefaction study which is based on a scale-up of the Wilsonville Pilot Plant with certain other processing alternates. The overall number of topical/task reports for this study are given below as follows:

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<u>Task No.</u>	<u>Title</u>
1	Management Plan
2	Baseline and Options (Alternates) Design Development
3	Cost Estimate and Economics of the Baseline and Alternates
4	Development of Mathematical Algorithms and Models for Equipment Sizing, Scale-up, Costing and Train Duplication for Incorporation into the Aspen Simulation Program
5	Development of an Aspen Process Simulation Model of the Baseline Design and the Alternates
6	Development of a Training Manual for the Simulation Model
7	Final Report

## INTRODUCTION - continued

This topical/task report for Task II is divided into three (3) volumes as follows:

<u>Volume No.</u>	<u>Table of Contents Sections Covered</u>	<u>Planned Date of Issue</u>
I	1 - 23	November 1991
II	24 - 42	November 1991
III	43 - 50	December 1991

Note that Volume III covers the alternate processing options which by definition lag the baseline design (Volumes I and II) by about a month.

The *Table of Contents, Introduction* (Section 1) and the Executive Summary (Section 2) are included in their entirety in all three volumes for the readers' reference.