SECTION I

FOREWORD

The governor of Pennsylvania approved "The Land and Water Conservation and Reclamation Act" on January 19, 1968. The Act authorizes the issuance of $500,000,000 in bonds for the conservation and reclamation of air, water, and land resources. It provides for the control and elimination of stream and air pollution resulting from past coal mining operations, the abatement of stream pollution from municipal sewage, and the development and improvement of recreational lands for the benefit of all Pennsylvanians.

The provisions of the Act are being implemented by several Commonwealth agencies. The Department of Environmental Resources is responsible for (1) eliminating air pollution from burning coal refuse banks as well as surface and underground mine fires, (2) reducing or eliminating surface subsidence above abandoned deep mine workings, (3) restoring abandoned strip mines, and (4) abating stream pollution from coal mine drainage.

The Act was amended, granting the Department the authority to construct and operate treatment plants to abate water pollution resulting from mine drainage. The Act does not supersede "The Clean Streams Act" and requires that such treatment shall not be less than required under "The Clean Streams Act." The Department may permit coal mine operators to discharge mine drainage to these plants, and may charge these operators according to their proportionate share of the capital and operating costs, as well as the quantity and quality of their discharges.

The Department initiated a comprehensive program to abate mine drainage pollution in several watersheds draining Pennsylvania's anthracite coal fields. The Swatara Creek watershed, one of the first watersheds selected, drains part of the southern field. Extensive headwaters deep and strip mining have caused significant mine drainage pollution of its waters. Also, Tremont Borough discharges untreated wastes into Swatara Creek. The water in the creek cannot, therefore, be used for beneficial purposes. Within its resources, the Department intends to reclaim and restore Swatara Creek. Accordingly, it authorized Gannett Fleming Corddry and Carpenter, Inc. and two other consulting engineering firms to conduct certain preliminary investigations to (1) determine the causes and extent of mine drainage pollution in the watershed, (2) ascertain the abatement measures that could be used to eliminate such pollution, (3) determine cost estimates for various combinations of abatement measures, including the collection and treatment of mine drainage discharges from active watershed mines, and (4) recommend construction of that abatement measure or combination of abatement measures considered to be most suitable.

After passing through the area underlaid with coal, Swatara Creek flows generally southwest to enter the Susquehanna River near Middletown, Pennsylvania. The watershed, its general location, and the areas assigned to Gannett Fleming Corddry and Carpenter, Inc., as well as the other two consulting firms are shown on Plate II. The terms with special meanings that have been used throughout this report are defined in the following Glossary.

GLOSSARY

Abatement Measure

Method by which acid mine drainage is (1) prevented or reduced, (2) treated, or (3) discharged to surface or subsurface waters in a controlled manner without treatment.

Abatement Plan

A single abatement measure, or combination of abatement measures, that when constructed will eliminate acid mine drainage discharges or bring such discharges into compliance with current limitations of the Department of Environmental Resources.

Affected Area of a Strip Mine

That area disturbed by strip mining, including the excavation or strip pit, the piles of removed overburden or spoil, and any area above the highwall from which earth was removed before, during, or after mining.

Acid Mine Drainage

Mine drainage not meeting current pH, iron, or acid limitations stipulated by the Department of Environmental Resources.

Annual Fixed Cost

Amortization (30-year term) plus interest at six percent per annum.

Annual Operating and Maintenance Cost

Cost attributable to items such as labor, chemicals, power, and replacements resulting from normal wear and tear.

Collection System

Includes all facilities necessary to deliver acid mine drainage to a treatment plant or disposal site, including mine water pool boreholes and pumps, flow equalization basins, conveyance sewers, and open channels.

Deep Mine Entry

Man-made entry constructed into or out of deep mine workings to gain access to the coal, enable its removal, or provide suitable working conditions.

Department

Department of Environmental Resources, Commonwealth of Pennsylvania.

Disposal Measure

Method by which acid mine drainage is discharged in a controlled manner to surface or subsurface waters without treatment.

Initial Cost

First 30-year average total annual cost.