**EVALUATION OF THE AMES SOLID WASTE RECOVERY SYSTEM**

**Section 1: Introduction**

The following report evaluates the performance of the Ames Solid Waste Recovery System relating to the following objectives:

Purpose and topic of the report

Overview of report contents

Background on the power plant

*Note:* This report is several hundred pages, which explains the length of this introduction.

Background on the research grant and project

* Evaluation of boiler efficiency
* RDF fuel utilization
* Particulate collector efficiency
* Other boiler performance including
  + excess air flow
  + characterization of coal, RDF, grate and collector ash
  + ash-softening temperatures
  + calculation of slagging and fouling indexes
* Corrosion

**Ames Solid Waste Recovery System**

The Ames Solid Waste Recovery System is a continuously operating system that processes municipal solid waste (MSW) for use as a supplemental fuel in the existing steam generators of the Ames Municipal Power Plant. This system consists of a 136-Mg/day (1509-ton/day) processing plant, a 454-Mg (500-ton) Atlas storage bin, pneumatic transport systems, and the existing municipal power plant. The processing plant incorporates two stages of shredding: ferrous and nonferrous metal recovery, and an air density separator. The three steam generators consist of one pulverized coal-fired unit, two spreaders, a return traveling grate, and stoker-fired units.

**EPA Research Grant**

The EPA Grant No. R803903-01-0 for the first year of research on the Ames Solid Waste Recovery System was officially awarded February 4, 1976. A detailed work plan was submitted in March 1976 and included (a) environmental evaluations of steam generator units 5, 6, and 7 including particulate collectors; (b) boiler performance study; (c) boiler corrosion studies; (d) economic evaluation of the solid waste process plant and the city power plant; and (e) interim characterization of the refuse-derived fuel (RDF).

The actual studies began June 1, 1976. Because of boiler unit availability at the power plant, environmental evaluation and boiler performance of the stoker-fired units were the major research emphases.