

# **CAMDEN RESOURCE RECOVERY FACILITY: ENHANCING ENVIRONMENTAL PERFORMANCE WITH AN EMPHASIS ON RECYCLING**

**Bruce C. Studley, P.E.**  
Vice President, Plant Operations,  
Foster Wheeler Power Systems  
Clinton, New Jersey

**Newton G. Wattis**  
Plant Manager  
Camden County Energy Recovery Associates, L.P.  
Camden, New Jersey

## **Discussion by**

**Joe Smisko**  
L.A. County Sanitation Districts  
Commerce, California

The paper provided an excellent overview of the operation and special testing conducted at the facility. As an operator of a facility myself, I benefit most from cost information and detailed test results. Table 1 and the mercury removal discussion provided the proper details to evaluate the technology.

Specific questions included:

1. What does the \$1.50/ton of MSW for mercury control include (capital repayment, hp for blowers, etc)? At 16 lb/hr/broiler, the chemical cost accounts for \$0.52 of the \$1.50/ton of MSW.

2. Auto shredder residue (enhanced shredder derived fuel) can contain heavy metals. Was heavy metals tests conducted for the ash and air emissions concurrently when this waste was burned? And what were the results?

Mr. Smisko's remarks during this event included concern for increased zinc in some test burns. Also, Mr. Smisko noted that ESDF has high levels of lead. Mr. Smisko commented that burning high Btu wastes hurts project economics (less tonnage over scale) and thus burning ESDF may not be good for the Camden facility.

## **AUTHORS' REPLY**

The estimated cost of \$1.50/ton of MSW processed for mercury control includes

capital costs, operations and maintenance and the delivered cost of the activated carbon. The current delivered cost of activated carbon is .44 cents per pound.

The enhanced shredder derived fuel is automobile shredder residue with additional processing to further remove metals from the end product. We utilized our continuous emission monitoring (CEM) system for air emissions comparisons and our daily ash sampling composites to determine there were no changes from the normal operating condition data.

## **Discussion by**

**Anthony Licata**  
Licata Energy & Environmental Consultants,  
Inc.  
Yonkers, New York

The authors have demonstrated that modern MWCs equipped with BACT air pollution control equipment can use many types of waste as a fuel. It requires considerable efforts to conduct this type of research and knowledge of combustion and air pollution control systems. In addition, the information provided in this paper supports that MWCs are viable method of disposing and recovering energy from many waste streams not normally considered MSW. Both The Pollution Control Financing Authority of Camden and the NJDEP should be acknowledged for their efforts to support these programs. The industry has seen many times the reluctance of owners and

regulators to burn anything other than MSW in MWCs. This paper demonstrates that MWCs are integral part of an environmentally sound system of integrated waste management.

I would like to ask the authors if they could provide additional information as follows:

- Please provide actual air emission data when burning tires, reclaimed landfill waste, and ESDF. This data will assist other facilities who would like to expand their capacity with alternate fuels.
- Describe operational or safety problems that occurred when burning this new fuels.
- Was any boiler corrosion or plugging observed when these fuels were burned?
- Did any of these fuels impact your ash characteristics?

#### **AUTHORS' REPLY**

The CEM air emission data showed no significant changes in average values that could be attributed to burning small quantities of other fuels such as tires, shredder residue and reclaimed landfill waste.

No operation or safety problems were experienced in processing the various fuels. Mixing of the wastes particularly the tires is important for the proper combustion conditions.

The short term tests did not indicate any adverse conditions in the boilers.

#### **Question by**

William Robinson

What is definition of ESDF compared to ASR? Was the HHV of 9,000 BTU/lb for ESDF when burning with 46 tires/hour?

#### **AUTHORS' REPLY**

The HHV of 9,000 BTU/lb was for the enriched shredder derived fuel (ESDF) based on sampling and laboratory analysis of the ESDF material only.

#### **Question by**

Steve Boppart

Have you thought about accepting medical wastes?

#### **AUTHORS' REPLY**

We are not considering accepting medical waste at the facility.

#### **Question by**

Marjorie A. Franklin  
Franklin Associates, LTD  
Prairie Village, Kansas

How long were the excavated bales buried in the landfill?

#### **AUTHORS' REPLY**

The bales excavated from the landfill were 1-2 years old.

#### **AUTHORS' CLOSURE**

If you have any further questions or need clarification please call me at (609) 966-7174.