TABLE OF CONTENTS

DOE Initiative in Emission Control Byproducts: A Government-Industry Consortium
William W. Aljoe
U.S. Department of Energy, Federal Energy Technology Center
D. Courtney Black
West Virginia University, National Mine Land Reclamation Center

Experiences and Observations

How's Your LOI and Will You Be Competitive After Deregulation?
John C. Welling, FLS miljo, Inc.

Carbon Loss in a Low-NOx Slag-Tap Firing System
T. Ake, R. Beittel, and E. Reicker, DB Riley, Inc.

Control Measures

Illinois Power’s On Line Operator Advisory System to Control NOx, Reduce LOI and Improve Boiler Efficiency
Peter D. Patterson, Ultramax Corporation

Processing and Utilization of High-LOI Fly Ash

Carbon Burn-Out at the Wateree Station of South Carolina Electric & Gas
Ted Frady, South Carolina Electric & Gas
Peter Hay, Progress Materials, Inc.

Reliability and Quality through Processing: Beneficiation of High LOI Fly Ash for Concrete
Stephen Gasiorowski, James Bittner, and Charles Willauer
Separation Technologies, Inc.
Al Vasiliauskas, ProAsh

Dry Beneficiation Processing of Combustion Fly Ash
Tiangxiang Li, John L. Schaefer, Heng Ban, James K. Neathery, and John M. Stencel
Center for Applied Energy Research, University of Kentucky

Three Processes for Increasing Consumption and Value of High Carbon Fly Ash
Casimir J. Koshinski and Thomas E. Weyand
Pittsburgh Mineral & Environmental Technology, Inc. (PMET)
Resonant Shock Compaction for Coal Combustion Product Utilization
Robert C. Amme, University of Denver
Robert E. Pressey, Keith Wier, and David Frey
Resonant Shock Compaction, LLC

Characterization of Unburned Carbon/Fly Ash - 1

Evaluation of Fly Ashes from the Henan Province of China for Use as Concrete Admixtures
Robert C. Brown, Ken Bergeson, Andy Suby, and Maohong Fan
Center for Coal and the Environment, Iowa State University
Robert Novack, Ametek Corporation
Yahui Zhuang
Research Center for Eco-Environmental Sciences
Chinese Academy of Sciences, Beijing, China
Zheng Kang and Lu Wang
Henan Center for Comprehensive Utilization of Fly Ash, Pingdingshan, Henan, China

Separation and Characterization Studies for Utilization of Unburned Carbon from Fly Ash
John P. Baltrus, McMahan Gray, William Sands, J. Rodney Diehl, Kenneth Champagne, and Dennis Finseth
U.S. Department of Energy, Federal Energy Technology Center

Characterization of Unburned Carbon/Fly Ash - 2

Characterization of Carbon Forms in Fly Ash Using Controlled-Atmosphere Programmed-Temperature Oxidation (CAPTO)
Robert B. LaCount, Waynesburg College and ViRoLac Industries
Douglas G. Kern, ViRoLac Industries
Amanda J. Beisel and Keith A. Giles, Waynesburg College
Timothy L. Banfield, Allegheny Power

A Novel Separation of the Carbon Types Present in Fly Ash by Density Gradient Centrifugation
M. Mercedes Maroto-Valer, Darrell N. Taulbee, and James C. Hower
Center for Applied Energy Research, University of Kentucky

Surface Characteristics of Unburned Carbon on Fly Ash and Their Influence on Foam Index Testing
Indrek Külaots, Yu-Ming Gao, Robert H. Hurt, and Eric M. Suuberg
Brown University
INSTRUMENTATION

SEKAM On-Line Carbon-in-Ash Monitor, Application Examples and Operating Experience
Brian Snowdon, Clyde Pneumatic Conveying Ltd., England ........................................ 55

Experience with Microwave-Based Systems for Measurement of LOI
Douglas N. Trerice, CAMRAC Co., Inc.
A.M. DiGiola, Jr., GAI Consultants, Inc.
J. Brian Reid, Reid Associates, Inc. .................................................................................. 59

Design Features of a Commercial Carbon-in-Ash Monitor Based on the Photoacoustic Effect
Robert Novack, Ametek Corporation
Robert Brown, Iowa State University, Center for Coal and the Environment .......... 63

Continuous On-Line Monitoring of Unburned Carbon—Case Study on a 650 MW Coal-Fired Unit
Mark Khesin, MK Engineering, Inc.
Richard G. Sharbaugh and Craig A. Clark, GPU Generation ...................................... 67

ECONOMICS

Economics of On-Line Ash, Coal and Unburned Carbon Monitors in Coal-Fired Power Plants
Jorgen Peetz-Schou, M&W Asketeknik ApS, Kvistgaard, Denmark ............................ 71