

MERCURY AND AIR TOXIC ELEMENT IMPACTS OF COAL COMBUSTION BY-PRODUCT DISPOSAL AND UTILIZATION

Quarterly Technical Report

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ABSTRACT

Preliminary work focused on initiating communications among the project sponsors and developing a detailed work plan for Year 1 of the project. Preparations for the project kickoff meeting included development of detailed work plans for all three years of the project, with emphasis on Year 1, development of sample selection criteria, and identification of information required on samples to be included in the study.

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EXECUTIVE SUMMARY

Work in the first quarter of this project focused on contracting and planning. The U.S. Department of Energy (DOE) National Energy Technology Laboratory (NETL) and industry sponsor representatives were contacted, a draft detailed work plan was developed, and preparations for a project kickoff meeting were made.

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INTRODUCTION

This effort will focus on the evaluation of coal combustion by-products (CCBs) for their potential to release mercury and other air toxic elements under different controlled laboratory conditions and will investigate the release of these same air toxic elements in select disposal and utilization field settings to understand the impact of various emission control technologies. The information collected will be evaluated and interpreted together with past Energy & Environmental Research Center (EERC) data and similar data from other studies. Results will be used to determine if mercury release from CCBs, both as currently produced and produced with mercury and other emission controls in place, is a realistic environmental issue. The proposed work will evaluate the impact of mercury and other air toxics on the disposal and/or utilization of CCBs. The project will provide data on the environmental acceptability of CCBs expected to be produced in systems with emission controls for typical disposal and utilization scenarios. The project will develop baseline information on release mechanisms of select elements in both conventional CCBs and modified or experimental CCBs. The modified or experimental CCBs will be selected to represent CCBs from systems that have improved emission controls. Controlling these emissions has high potential to change the chemical characteristics and environmental performance of CCBs. Development of reliable methods to determine the release of mercury from CCBs will provide a means of evaluating the environmental risk associated with CCB management practices. Using appropriate methods to develop a data set of currently produced CCBs and CCBs produced under experimental/ simulated conditions will provide a baseline for the CCB industry to understand the impact of various emission control technologies.

EXPERIMENTAL

No experimental work was performed during the quarter.

RESULTS AND DISCUSSION

The first quarter of this effort focused on final contracting and project planning. The DOE NETL Project Manager, Swenam Lee, and the EERC Project Manager worked together to plan a project kickoff meeting, which was held on April 3, 2003, at NETL in Pittsburgh. The EERC Project Manager had conference calls with the industrial sponsors to discuss expectations and goals for the project. The EERC project team prepared a detailed draft work plan for Year 1 of the project, and a work plan for Years 2 and 3 was also developed with less detail to allow for modifications based on findings in Year 1. Auxiliary information, sample selection criteria, and identification information were drafted for use in discussions with NETL and industry. The EERC project team met to discuss the detailed work plan, and additional discussions were scheduled to follow the project kickoff meeting. The detailed work plan and associated

documentation were distributed to project sponsors in preparation for the project kickoff meeting.

CONCLUSIONS

The preliminary administrative work performed under the first project quarter is anticipated to result in an improved detailed work plan, and it provided the opportunity to develop the communication network for the project.

Table 1. List of Acronyms

CCB	coal combustion by-products
DOE	U.S. Department of Energy
EERC	Energy & Environmental Research Center
NETL	National Energy Technology Laboratory
