

Date: June 17, 2004

To: Mike Koerber, Donna Kenski

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Subject: Expanded Monitoring and Speciation Sampling for PM-2.5 and its Gas-Phase Precursors

This is a progress summary for the Bondville PM-2.5 project for the period 1/1/04 to 4/30/04. I am also attaching updated spreadsheets with the denuder/filterpack data for Bondville and for the ammonia network sites.

**FRM Sampler.** Federal Reference Method (FRM) sampling for PM-2.5 is continuing at the Bondville Environmental and Atmospheric Research Site (BEARS) during the LADCO-sponsored PM-2.5 project. Between 1/1/04 and 12/30/04, 19 samples were collected. Filters were shipped to the Maywood Office of Cook Co. DEQ for weighing. FRM PM-2.5 data will be available from the Illinois Environmental Protection Agency.

**Dichotomous Samplers.** The Water Survey operates a dichotomous sampler at BEARS. This sampler separates airborne particles into fine and coarse fractions. The fine fraction is equivalent to PM-2.5. These samples are used for special analyses of organic components of PM-2.5. Because a large mass of sample is needed, the sampling time is 7-14 days in contrast to the 24-hour period used with the FRM sampler. Between 1/1/04 and 4/30/04, 9 samples were collected on Teflon filters. Samples of PM-coarse (diameter > 2.5 microns) are being extracted and analyzed for ammonium, sulfate, and nitrate. An updated spreadsheet with preliminary data for PM-coarse samples is attached.

**TEOM and EC/OC Samplers.** The Tapered-Element Oscillating Microbalance (TEOM) was in operation for the period between 1/1/04 and 4/30/03. This sampler is a continuous monitor for PM-2.5 mass. We are also operating a continuous analyzer for particulate elemental carbon and organic carbon (EC/OC) that was put in service as of 8/15/01. This unit was in operation between 1/1/04 and 4/30/04.

**Denuder Sampling.** Both the manual denuder and the automatic R&P speciation sampler were used sampling for ammonium, nitrate and sulfate particulate and gas phases at Bondville during the period. Five (5) manual denuder, fourteen (18) R&P samples and 2 field blanks were collected between 1/1/04 and 4/30/04. Updated databases of preliminary results from analysis of denuder extracts collected through 4/21/04 are included in the spreadsheets we are sending.

**NO<sub>x</sub>-NO<sub>y</sub> Monitoring.** The system was installed in the trailer at the Bondville site in February. The system was in continuous normal operation between 1/1/04 and 4/30/04. A small amount of missing data was due to equipment malfunctions and waiting for replacement parts.

**Continuous Ion Chromatography (IC) Sampling.** This system has been the most problematic of the equipment installed at Bondville. Routine sampling with the IC system has been under way since 5/1/03. A full calibration and overhaul of the system was conducted in early December. Some modifications were also made to the particle trap. Performance of the system has been improved since then.

**Pranalytica Ammonia Monitor.** This instrument failed in March and was sent back to the manufacturer for repairs. It was put back into operation in May.

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