UNITED ST. .S ENVIRONMENTAL PROTECTION AC .ICY
REGION 4
ATLANTA FEDERAL CENTER
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ATLANTA, GEORGIA 30303-8960

4WD-RPB

MAY 10 1999

Mr. Gerald Hardy, Chief
Land Division
Alabama Department of Environmental
Management
1400 Coliseum Blvd.
Montgomery, Alabama 36110-2059

Subject: Air Flux Study
Solutia - Anniston
EPA I.D. Number: ALD 004 019 048

Dear Mr. Hardy

Region 4's RCRA Programs Branch of the U.S. Environmental Protection Agency (EPA-RCRA) has completed its review of the ***Work Plan for Estimating PCB Vapor Flux From Two Landfills***, prepared for Solutia Inc. by ENSR®, Document Number 6105-006-100, March 2000. As you know, the objective of this study is to determine the emission of volatile PCBs to air, if any, from the capped landfills. Such a focused air study is deemed a worthy pursuit in order to better determine the contribution of each unit to the ambient air levels of PCBs already detected by Solutia's current ambient air monitoring and confirmed by SESD's air sampling from June of 1999.

Although directly measuring air releases from the landfills through placement of air flux chambers directly on the landfill seems reasonable, our technical staff in Athens **recommend** that quantification of releases from the landfills be pursued using standard EPA sampling methods and protocols. In forming this judgement, our technical staff first noted that there is no EPA approved method for air flux chambers. EPA then observed that limited success using flux chambers for the measurement of **volatile** organic compounds with high vapor pressures that evaporate readily through porous surfaces has been documented. However, the work plan describes the use of flux chambers to capture PCBs. PCBs are classified as **semi-volatile** organic compounds (SVOCs), which means they exist as liquid and/or gas depending on temperature or pressure. Since PCBs are SVOCs, a large portion of them will be bound to particles which may make it more difficult to obtain an accurate sample using flux chambers. EPA is also concerned that all of the influencing variables, which could significantly affect the emission rate through the landfill (e.g., soil temperature, soil moisture content, barometric pressure, solar radiation and spatial variability, etc.), cannot be fully addressed through a one time sampling effort.

Because PCBs have been detected in the ambient air surrounding Solutia, air contamination is being assessed and health impacts are to be calculated. Given the desire for better quantification of PCB emissions from the capped landfills, as mentioned above, EPA-

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RCRA recommends adapting the use of EPA-RCRA established and acceptable methods. For example, EPA-RCRA believes that the existing ambient air monitoring system, operated by Solutia and sampled twice monthly, once properly quality assured, can be integrated with additional focused ambient air monitoring around possible sources (e.g., South Landfill, West Landfill, Miller Property, Detention Pond Area, etc.). Although this proposed approach is less direct than the results promised through an air flux study, EPA-RCRA believes that such an approach is more technically sound than pursuit of the proposed air flux study. If the EPA approved methods and approaches fail to supply enough information from which to base a decision, then ADEM might wish to pursue less standard methods like the air flux study.

EPA wants to **remind** ADEM that CERCLA-Remedial is planning to perform ambient air monitoring in the community in June of 2000. In order to obtain the maximum amount of useful air information, ADEM should closely coordinate the on-site ambient air monitoring system operated by Solutia with the CERCLA community air study. EPA also wants to **remind** ADEM that collecting meteorological data during all air sampling events is important for interpretation of air data and should be, if not already, required of Solutia.

If you have any questions, please contact Russell Mclean or Wesley Hardegree of my staff at (404) 562-8504 or (404) 562-8486, respectively. Tim Slagle of our Science and Ecosystem Support Division can be reached at (706) 355-8741 for technical questions.

Sincerely,

Narindar M. Kumar, Chief
RCRA Programs Branch
Waste Management Division

cc: Tim Slagle, EPA - SESD
Karen Knight, EPA - CERCLA
Annie Godfrey, EPA - CERCLA
Elmer Akin, EPA - OTS

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U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION 4, SCIENCE and ECOSYSTEM SUPPORT DIVISION
ATHENS, GEORGIA 30605-2720

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MEMORANDUM

SUBJECT: Review of Work Plan for Estimating PCB Vapor Flux From Two Landfills
Solutia, Inc. EPA ID 004 019048
SESD Project Number 00-0503

FROM: Tim Slagle
Superfund and Air Section

THRU: Archie Lee, Chief
Superfund and Air Section

TO: Wesley S. Hardegree, Corrective Action Specialist
South Programs Section

I have reviewed a copy of the ***Work Plan for Estimating PCB Vapor Flux From Two Landfills***, prepared for Solutia Inc. by ENSR®, Document Number 6105-006-100, March 2000.

Measurement of PCB emissions from landfills using flux chambers is not main-stream science and should be considered research. Limited success using flux chambers for the measurement of volatile organic compounds with high vapor pressures that evaporate readily thru porous surfaces has been documented.

The work plan describes the use of flux chambers to capture PCBs. PCBs are classified as semi-volatile organic compounds (SVOCs), which means they exist as liquid or gas depending on temperature or pressure. Since PCBs are SVOCs, a large portion of them will be bound to particles which may make it more difficult to accurately sample them using flux chambers.

EPA has no standard method for using flux chambers.

The sampling portion of the sampling plan does not address the length of tubing to be used between the flux chamber and the XAD tube, which should be kept at a minimum and as straight as possible. Duplicate samples should be taken at a portion of the sites to check the precision of the sampling method. Also, ancillary measurements such as soil temperature, soil moisture content, barometric pressure, and solar radiation, which could significantly affect the emission rate through the landfill, were not addressed.

SESD would strongly discourage the use of flux chamber measurement approach to quantify the PCB emissions or lack thereof from the landfills.

If the main intent is to quantify the PCB emissions from the landfills we would recommend adapting the use of EPA established and acceptable methods.

If you have any questions or comments please contact me at (706) 355-8741.

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