UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

APR 16 1999

OFFICE OF
SOLID WASTE AND EMERGENCY
RESPONSE

The Honorable Ron Wyden
United States Senate
Washington, DC 20510

Dear Senator Wyden:

Thank you for your letter of February 11, 1999, co-signed by Senator Inhofe, regarding the Agency's rulemaking to develop Maximum Achievable Control Technology for hazardous waste combustors (HWC MACT rule). Your letter poses several specific questions about the rulemaking and our internal workgroup process for development of final emissions standards for semivolatile metals (lead and cadmium) for hazardous waste burning cement kilns.

At this time, the HWC MACT rulemaking is still in the deliberative phase. The final rulemaking package has been drafted and is undergoing a three-month review by the Office of Management and Budget prior to signature by the Administrator. Because the rule is at a sensitive stage in its development, we are able to provide only a partial response to your questions. In addition, because the rule is still under review, the responses provided should not be viewed as final Agency action or final policy determinations.

Your letter requested information from the HWC MACT rulemaking record establishing a correlation between semivolatile metal (SVM) feedrates and air emissions of SVMs from HWC cement kilns. Our response to these questions (Question 1) is contained in Attachments A and B and the enclosed supporting documents.

You further requested that the Agency provide information supporting the rationale for the SVM emission standard in the draft final rule. In particular, you asked us to provide you with information on the approximate range of the SVM emissions standard in the draft final rule and on any disagreements or "nonconcurrences" between EPA's Office of Air and Radiation and EPA's Office of Solid Waste and Emergency Response pertaining to the SVM standard for cement kilns. The response to these requests would reveal privileged Agency deliberations and provisional rulemaking determinations that are not yet final. It is the Agency's policy not to reveal the specific contents of rulemakings prior to release of the final rule, unless this information is requested as part of a formal oversight inquiry by a Congressional committee of jurisdiction. Therefore, at this time we are unable to provide the information requested in Question 2 of your letter.

Faxback 14508

Thank you for your interest in the HWC MACT rule. If additional information is required or questions arise, please have your staff contact George Hull in our Office of Congressional and Legislative Affairs at (202) 260-7808.

Sincerely,

Timothy Fields, Jr.

Timothy Fields, Jr.
Acting Assistant Administrator

Enclosures

ATTACHMENT A

Committee Questions on Correlation between SVM Feedrates and Emissions

a) We [the Committee] understand that the database in the HWC MACT rulemaking record contains no evidence of a general correlation between semivolatile metal (SVM) feedrates and air emissions of SVMs from HWC cement kilns. Does EPA's Office of Solid Waste and Emergency Response (OSWER) now have data establishing such a correlation? If such data exists, please provide us with all relevant information to that effect.

b) Identify the criteria used by OSWER to include or exclude any given feedrate used at any given site.

c) Please provide any information that may demonstrate that SVM feedrate is a reliable indicator of site-specific SVM air emissions. Include any information in the rulemaking record that indicates that SVM feedrates may not be a reliable indicator of site-specific SVM air emissions (e.g., Are there instances when stack test data for a particular facility show that air emissions decreased when feedrate increased, or vice versa?).

EPA Response to 1a: Does OSWER now have data in the rulemaking record establishing a general correlation between SVM feedrates and air emissions of SVMs from HWC cement kilns? If such data exists, please provide us with all relevant information to that effect.

At this time, the HWC rulemaking record includes two documents that support the positive relationship between SVM feedrates and emissions from HWCs. The first document was entered into the rulemaking record at the time of our April 19, 1996 notice of proposed rulemaking (April 1996 NPRM). The second was entered at the time of our May 2, 1997 Notice of Data Availability (May 1997 NODA). A third document is still under development and will be entered immediately prior to the Administrator's signature of the final rule. Once Agency final positions are approved, we may add other supporting documentation to the rulemaking record as well as the Response to Comments document that typically accompanies the final rule. A brief summary of these three documents is presented below with additional discussion of conclusions provided in Attachment B. Copies of the first two documents are enclosed with this letter, as are the relevant pages from the third, draft document.

Document 1: "Surrogate Evaluation for Thermal Treatment Systems," Energy and Environmental Research Corporation Report to EPA, October 17, 1994.

This document was placed in the HWC rulemaking docket F-96-RCSP-FFFFF on March 5, 1996 to support the April 1996 NPRM and is item S0008. One objective of this surrogate evaluation analysis is to identify groups of like-behaving metal compounds and surrogate compounds that may be monitored on a continuous basis to represent these groups of metal compounds. As part of the metals surrogates conclusions, the report concludes that SVM emissions are dependent on both the feedrate of the metal and the efficiency of the particulate control device.

Document 2: "Draft Technical Support Document for HWC MACT Standards, NODA, Volume III: Evaluation of Metal Emissions Database to Investigate Extrapolation and Interpolation Issues," April 1997.

This support document was placed in the HWC rulemaking docket F-97-CS4A-FFFFF on April 24, 1997 to support the May 1997 NODA and is item S0003. This document evaluates the use of metals extrapolation and interpolation procedures to set metals feedrate limits based on compliance testing emissions measurements. Our evaluation of the emissions and feedrate data concludes that, for individual facilities, an increase in feedrate produces an increase in emissions, as expected. Further discussion of facility specific emission-feedrate relationships is provided in Attachment B.

Document 3: "Draft Technical Support Document for HWC MACT Standards, NODA, Volume III: Selection of MACT Standards and Technologies," April 1999.

This is a draft of the Technical Support Document that will be placed into the rulemaking record after the final Agency positions are approved and prior to the Administrator's signature. In this document, we consolidate our conclusions and supporting information that demonstrate a positive relationship between SVM feedrates and SVM emissions for hazardous waste combustors. We have provided the pages of the document that are relevant to the issues raised in Question 1:

EPA Response to 1b: Identify the criteria used by OSWER to include or exclude any given feedrate used at any given site.

Our analysis includes feedrate and emissions data from hazardous waste combustors taken during trial burns or compliance tests, as well as data from the Du Pont Experimental Station. The Du Pont data were collected for the express purpose of directly evaluating the relationship between feedrate and stack gas emissions rate and are perhaps the most pertinent on the point in question. Our correlation analysis considers all SVM feedrate data available from the various tests. Although we did not exclude any feedrate data, we did exclude some emissions data. These data were measurements below the analytical detection limit of the method. Retaining

these data would have inappropriately biased the results.

EPA Response to 1c: Please provide any information that may demonstrate that SVM feedrate is a reliable indicator of site-specific SVM air emissions. Include any information in the rulemaking record that indicates that SVM feedrates may not be a reliable indicator of site-specific SVM air emissions (e.g., Are there instances when stack test data for a particular facility show that air emissions decreased when feedrate increased, or vice versa?).

The information in the HWC rulemaking record that best demonstrates that SVM feedrate is a reliable indicator of site-specific SVM air emissions is presented in the enclosed "Draft Technical Support Document for HWC MACT Standards (NODA) Volume III: Evaluation of Metal Emissions Database to Investigate Extrapolation and Interpolation Issues," April 1997. These data (in particular, see Section 3.2.1 Individual Metals From the Same Facility and Figure 4), were generated at the Du Pont experimental facility hazardous waste incinerator in Wilmington, DE under controlled conditions for the purpose of specifically evaluating the relationship between feedrates and stack emissions of metals, including semivolatile metals. These data are the only data available to us generated for the specific purpose of evaluating this relationship, but are not the only data suggestive of this relationship. Our analysis of the Du Pont data clearly shows that SVM emissions increase as feedrates of SVM increase. Although these data were generated at an incinerator, we believe the same conclusion holds true for all types of HWCs. Theoretical considerations indicate that it is reasonable to expect a direct, positive relationship between metals feedrate and emissions since metals cannot be destroyed in the combustion process and SVMs will exit the system mainly via the stack. This relationship assumes, and we believe this to be the case for all HWCs, that the system is in equilibrium, i.e., metals are not building up or accumulating in the system.

The draft Technical Support Document also presents our data from hazardous waste cement kilns (see our response to Question 1a). These data, as well as most of the data in our HWC data base, come from trial burns and compliance tests. These data were not generated for the purpose of supporting or disproving a relationship between metals feedrates and emissions. As a result, some data in our data base show a correlation between feedrates and emissions while other data show no apparent correlation. The lack of correlation in most instances, referred to in the Technical Support Document as data scatter, is likely a result from changes in facility characteristics, conditions, and operating practices from test to test. The Du Pont test was specifically designed to minimize these variations. Please see Attachment B for additional discussion of the surrogate evaluation and metals extrapolation analysis.

ATTACHMENT B

Document 1: "Surrogate Evaluation for Thermal Treatment Systems," October 17, 1994.

One objective of this surrogate evaluation analysis is to identify groups of like-behaving metal compounds and surrogate compounds that may be monitored on a continuous basis to represent individual metal compounds within the group. In this report, we do not attempt to establish a correlation between SVM feedrates and SVM emissions for individual combustor type (i.e., cement kilns, lightweight aggregate kilns, incinerators, or boilers). However, we evaluate several of our HWC data base trial burn and compliance test emissions data sets to determine the relationship between metals emissions and metal feedrates. Our results indicate that emissions of semivolatile metals are affected by both the feedrate of the metals and also by the efficiency of particulate matter capture for all types of HWCs, including cement kilns.

Our analysis also identifies the best correlations between SVM feedrates and emissions by reducing the impact of varying operating parameters and particulate matter control equipment. Even though the best correlations, as highlighted in the report, are found for the incinerator data, our conclusion that SVM emissions are affected by the feedrate of SVMs also holds true for all types of HWCs, including cement kilns, because metals are not destroyed in the combustion system. Therefore, the report concludes that reducing particulate matter emissions or limiting the feedrate of semivolatile metals would be an effective means of reducing semivolatile metals emissions at all HWCs.

Document 2: "Draft Technical Support Document for HWC MACT Standards, NODA, Volume III: Evaluation of Metal Emissions Database to Investigate Extrapolation and Interpolation Issues," April 1997.

To support our conclusion that upward extrapolation (i.e., extrapolation of allowable feedrate limits from lower feedrate measurements) can be implemented for all metal types and volatilities, including SVMs, we evaluated the theoretical potential for emissions and the empirical data in the HWC database to determine the relationship between metals feedrate and emission rate. The study finds that theory and common sense indicate that there must be some type of direct, positive relationship between metals feedrate and emissions. (Metals cannot be destroyed in the combustion process, and assuming the system must reach some type of equilibrium, metals cannot accumulate in the system without reaching a saturation limit). Additionally, the theory predicts the relationship to be proportional over a large range of feedrates (an increase in feedrate produces a consistent incremental increase in emissions). A flat or negative relationship (that emissions decrease as feed increases) is not physically possible. Although there are some data that would indicate this, this data has likely not been obtained under sufficiently controlled conditions that are required for the purpose of demonstrating the relationship. Therefore, notwithstanding the data limitations noted in the document, we conclude that the available data for an individual combustor confirms a positive relationship between SVM feedrate and emissions.