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Sept 11, 1989

Mr. Christopher J. Daggett  
Commissioner  
State of New Jersey  
Department of Environmental Protection  
CN 402  
Trenton, New Jersey 08625-0402

Dear Mr. Daggett:

This is in response to your August 15, 1989 letter to Administrator William Reilly regarding the use of urea injection in place of ammonia injection for the control of nitrogen oxides (NOx) from municipal waste combustors (MWC's). You wish to know if the Environmental Protection Agency (EPA) would accept urea injection as either innovative control technology or best available control technology (BACT) for NOx control from MWC's. Also, you ask if EPA would approve of its use at the proposed Passaic Resource Recovery Facility (PRRF) and how such approval would likely affect the current administrative review process for NOx control from the source.

In recent BACT determinations for MWC's, EPA has accepted ammonia injection as the best and the most appropriate control technology for NOx control. Consequently, ammonia injection, or a comparable technology in terms of emissions reduction and other impacts, would currently qualify as BACT. Therefore, at the present time, if it were adequately shown in an application for a MWC that urea injection would be comparable to (or better than) ammonia injection in terms of performance and impacts, urea injection could be determined to represent BACT. It is important to note, however, that in the future a more stringent level of control could, of course, supplant ammonia injection as the "top" control level.

The prevention of significant deterioration (PSD) regulations, in addition to establishing specific provisions for BACT and modeling requirements, set out criteria for determining whether a proposed control technology is innovative. For PSD purposes, "innovative control technology" is defined at 40 CFR 52.21(b)(19) as "any system of air pollution control that has not been adequately demonstrated in practice, but would have a substantial likelihood of achieving a greater continuous emissions reduction than any control system in current practice or of achieving at least comparable reductions at lower cost in terms of energy, economics, or nonair quality environmental impacts." Our initial review of the limited data available to us indicates that there have been over 20 field demonstrations of urea injection worldwide on a range of combustor and fuel types (including two MWC facilities). Although it has not been applied commercially to a MWC facility in the United States, urea injection has been applied commercially to a MWC facility in Basel, Switzerland, and a carbon monoxide (CO) boiler in California. Preliminary indications are that its commercial application at a

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MWC may provide for comparable (or greater) NOx control at a lower cost. As to urea injection being considered innovative technology, EPA cannot, however, rule on the issue until presented with source-specific information and written justification from the applicant and State addressing 1) why urea injection should be considered as not having been adequately demonstrated in practice, 2) how the technology fulfills the other innovative technology criteria [as defined at 40 CFR 52.21(b)(19)], and 3)

how it will be applied to the source.

As you are aware, the PSD permit for PRRF is currently before the Administrator as a result of his decision to review the State's BACT determination respecting NOx emissions. Moreover, a petition challenging the same determination (and others) was also received from Beth Israel Hospital and United Passaic Organization. Although a decision by the State to amend the permit for the purpose of revising the BACT determination to require either ammonia or urea injection (assuming they are comparable) would probably moot the NOx issue, the amendment itself would be subject to applicable public participation procedures, including appeal procedures under 40 CFR 124.19. Therefore, the permit could not become effective until those procedures have been satisfied.

I have asked Region II to take the lead and work with you in evaluating any information the State or applicant may wish to present for the purpose of demonstrating urea injection as BACT or innovative control technology, either at PRRF or another MWC facility. If you have any further questions in regard to this matter, please contact Conrad Simon, Director, Air and Waste Management Division, Region II, at (212) 264-2301.

Sincerely,

Gerald A. Emison  
Director  
Office of Air Quality Planning  
and Standards

cc: Conrad Simon  
Frank E. Ferruggia  
Robert J. Burcin  
Ronald L. McCallum