14 January 1998

Re: NEPA Technical Inquiry 0082 - TB Filter for Detainment Cells

Dear NEPA Call-In User:

This letter is in response to your April 28, 1997 request for information about whether a high efficiency particulate air (HEPA) filter is needed for exhaust air from a detainment cell. You are retrofitting the cells in a U.S. Marshall's Office to have separate exhaust systems pump air directly outside the building to reduce the risk of spreading infectious diseases, especially tuberculosis (TB). The cells will also be under negative air pressure so airborne TB and other diseases cannot migrate to other areas of the building. You received the document "Prevention and Control of Tuberculosis in Correctional Facilities" from the Industrial Hygienist, GSA which references negative air pressure isolation rooms. Unfortunately, your copy contains only the odd numbered pages. You also received "Tuberculosis Training for the Federal Employee," which lists HEPA filtration units as a control method to be considered for high risk settings. Specifically, you would like a complete copy of "Prevention and Control of Tuberculosis in Correctional Facilities." You would also like to know if a HEPA filter is required for the exhaust air. If a HEPA filter is required, you would like to know the proper removal and replacement procedures as you are concerned the filter can be a medium for the growth of TB, and prove to be a hazard to the maintenance staff.

SUMMARY OF FINDINGS

NEPA Call-In located a complete copy of "Prevention and Control of Tuberculosis in Correctional Facilities." According to the Centers for Disease Control and Prevention (CDC), Occupational Safety and Health Administration (OSHA), and GSA, HEPA filters are not required if the air is exhausted outside. If there is a danger the exhaust air can reenter the ventilation system of the building, HEPA filters are recommended. "Heating, Ventilation, Air-Conditioning Systems: The Engineering Approach to Methods of Control," Woods, J.E., and Rask, D.R., 1988; and OSHA Instruction CPL 2.106 contain installation, testing, and maintenance procedures for HEPA filters. NEPA Call-In's detailed findings are provided below.

DETAILED FINDINGS

NEPA Call-In determined "Prevention and Control of Tuberculosis in Correctional Facilities," June 7, 1996, is a report contained in the Morbidity and Mortality Weekly Report (MMWR), a publication of the CDC. The document is available on the CDC World Wide Web site at www.cdc.gov/publications.htm. NEPA Call-In visited the site and downloaded the requested document (enclosed). The document states air from a TB isolation room should be exhausted according to "Guidelines for Preventing the Transmission of Mycobacterium Tuberculosis in Health-Care Facilities, 1994," MMWR, October 28, 1994.

We downloaded the table of contents and applicable portions of "Guidelines for Preventing the Transmission of Mycobacteruim Tuberculosis in Health-Care Facilities" from the CDC internet site (enclosed). Chapter II, "Recommendations," Section E, "Management of Hospitalized Patients Who Have Confirmed or Suspected TB," Part 3, "The TB isolation room," states air from TB isolation rooms should be

exhausted to the outside. It further states if it is not possible to exhaust the air outside, and recirculation of air into the general ventilation system is unavoidable, HEPA filters should be used. Supplement 3, "Engineering Controls," provides information on the use of ventilation for preventing the transmission of TB. Section II, "Ventilation," Part C, "HEPA filtration" states HEPA filtration can be used as an added safety measure to clean air from isolation rooms. However, this use is not necessary if the exhaust air cannot reenter the ventilation system supply. If there is a possibility the exhaust air could reenter the system, a HEPA filter should be used. Part C states installation, maintenance, and testing should be performed according to "Heating, Ventilation, Air-Conditioning Systems: The Engineering Approach to Methods of Control;" Woods, J.E., and Rask D.R., 1988 (enclosed).

NEPA Call-In contacted the Biosafety Branch, Office of Safety and Health, CDC, (404) 639-3235, for proper handling procedures for HEPA filters. The Biosafety Branch office confirmed there is no requirement to use a HEPA filter on exhaust air from an isolation room. The Biosafety Branch office stated the risk of contracting TB from a HEPA filter is very low. They stated, in your situation, you could simply remove the filter with rubber gloves, soak in a 1:10 dilution of bleach for thirty minutes, and then dispose of the filter in the trash. The Biosafety Branch office further stated the guidelines for maintenance and monitoring of HEPA filters in health-care facilities are found in "Guidelines for Preventing the Transmission of Mycobacterium Tuberculosis in Health-Care Facilities."

We then contacted Mr. Gail Brinkerhoff, Office of Health Compliance Assistance, Occupational Safety and Health Administration (OSHA), (202) 219-8036, to determine if OSHA had requirements for the use of HEPA filters. Our questions were addressed by Mr. Craig Moulton of the same office. Mr. Moulton stated guidance on HEPA filter installation, maintenance, and monitoring procedures related to TB isolation are outlined in OSHA Instruction CPL 2.106 (relevant sections enclosed). Mr. Moulton stated he was unaware of any OSHA requirements to use HEPA filters unless there is a chance the exhaust air could return back to the main circulation system. Mr. Moulton also warned the exhaust air should not be located where people outside may be exposed to the risk of contact with contaminated air. Mr. Moulton stated, in his opinion, it is a good idea to exhaust correctional facility isolation cell air to the outside through HEPA filters as a precautionary measure to prevent the spread of TB.

NEPA Call-In contacted the Industrial Hygienist, GSA Public Building Service (PBS), Office of Property Management, to determine if GSA has any requirements for the use of HEPA filters. The Industrial Hygienist stated GSA does not have a policy requiring the use of HEPA filters. The Industrial Hygienist also stated that sometimes exhaust/ventilation systems are used for these types of applications which are separate from the main building system. The Industrial Hygienist stated GSA makes determinations such as this on a case-by-case basis. Finally, the Industrial Hygienist stated typically contractors are used for system maintenance and filter changing and are responsible for handling such filters in accordance with any existing regulations.

legal developments. Readers should also be aware that this response is based upon laws, regulations, and policies in place at the time it was prepared and that this response will not be updated to reflect changes to those laws, regulations and policies.

Sincerely,

(Original Signed)

NEPA Call-In Researcher