THE NATIONAL ACADEMIES NEWS
National Academy of Sciences Institute of Medicine
National Academy of Engineering National Research Council

Read Full Report

Date: July 2, 2002
Contacts: Jennifer Burris, Media Relations Associate
Andrea Durham, Media Relations Assistant
(202) 334-2138; e-mail <news@nas.edu>

FOR IMMEDIATE RELEASE

Sewage Sludge Standards Need New Scientific Basis

WASHINGTON -- The U.S. Environmental Protection Agency's standards that govern using treated sewage sludge on soil are based on outdated science, says a new report from the National Academies' National Research Council. The agency should update its standards using improved methods for assessing health risks, and should further study whether treated sewage sludge causes health problems for workers who apply it to land and for residents who live nearby, added the committee that wrote the report. More rigorous enforcement of the standards is needed as well.

"There is a serious lack of health-related information about populations exposed to treated sewage sludge," said committee chair Thomas A. Burke, professor, department of health policy and management, Johns Hopkins University Bloomberg School of Public Health, Baltimore. "To ensure public health protection, EPA should investigate allegations of adverse health effects and update the science behind its chemical and pathogen standards."

Under a 1993 Clean Water Act rule designed to protect public health and the environment, sewage sludge can be applied to land if it is sufficiently treated to limit concentrations of certain chemicals and reduce disease-causing pathogens. Sewage sludge that meets these standards is referred to as biosolids. Depending on the extent of treatment, biosolids may be applied as a fertilizer where there is limited public exposure to it, such as farms and forests, or on sites with more public contact such as parks, golf courses, lawns, and home gardens. Since 1992, when a ban on ocean dumping was instituted, applying biosolids to land has reduced the amount of sewage sludge that would otherwise need to be buried in landfills or incinerated. About 5.6 million tons of sewage sludge are used or disposed of each year in the United States, and 60 percent of that is used for land application.

Methods for assessing the health risks posed by exposure to chemicals have evolved substantially since the 1993 biosolids rule was established. In addition, EPA used an unreliable 1988 survey to identify hazardous chemicals in sewage sludge when it set the standards, and other chemicals have since been found to be of potential concern. A new survey and revised risk assessments are needed, the committee said.

This page is maintained by the National Academies Office of News and Public Information Web group.

Craig Hicks
Managing Editor

Tom Roberts
Deputy Managing Editor

Lauren Morello
Online Producer

Jonathan Waldman
Web Outreach Specialist

Contact us by e-mail
news@nas.edu

The revised risk assessments also should reflect the potential for regional variations in climate, water flow, and biosolids characteristics, and should be designed to protect individuals against realistic maximum exposures.

The committee agreed with EPA's general approach for regulating pathogens, which requires the level of disease-causing microorganisms to be reduced through treatment of sewage sludge and restrictions on use of land immediately after biosolids are applied. However, the agency should use new pathogen-detection technology to ensure that treatments are reliable. Microbial risk assessments that include the possibility of secondary transmission of disease, such as through person-to-person contact or through food, air, or water, also should be developed. As is the case with chemicals, a new national survey of pathogens in sewage sludge should be carried out.

To assure the public that biosolids regulations are being followed, EPA should increase its efforts to ensure that companies producing biosolids meet the regulatory requirements to remove or neutralize chemicals and pathogens. EPA also needs to ensure that biosolids are applied in accordance with special management practices. In certain cases, biosolids can be applied with the understanding that the land cannot be used for a specified period to allow pathogens to fall below detectable levels. However, EPA has not been verifying if pathogens are dying off, whether the land is being used for agriculture or grazing, or whether public access is adequately restricted. Field data are needed in these cases, the committee said.

EPA also should conduct studies of the potential health risks, or lack thereof, to workers and residential populations exposed to biosolids. The report cites anecdotal reports linking biosolids to adverse health effects, ranging from mild allergic reactions to more severe chronic conditions, along with public concern about those reports. The committee also cited a lack of population studies on individuals exposed to biosolids, such as farmers and nearby residents. Studies on workers exposed to raw sewage are not an adequate substitute for studies of populations exposed to biosolids in the environment, the committee concluded. More funding and staff are needed to support EPA's regulation of biosolids. Some of these resources should go toward the needed research.

The study was sponsored by the U.S. Environmental Protection Agency. The National Research Council is the principal operating arm of the National Academy of Sciences and the National Academy of Engineering. It is a private, nonprofit institution that provides science and technology advice under a congressional charter. A committee roster follows.

The report **Biosolids Applied to Land: Advancing Standards and Practices** is available on the Internet at **http://www.nap.edu.** Copies will be available for purchase later this summer from the National Academy Press; tel. (202) 334-3313 or 1-800-624-6242. Reporters may obtain a pre-publication copy from the Office of News and Public Information (contacts listed above).

NATIONAL RESEARCH COUNCIL
Division on Earth and Life Studies
Board on Environmental Studies and Toxicology

Committee on Toxicants and Pathogens in Biosolids Applied to

Land

Thomas A. Burke (chair)
Professor
Department of Health Policy and Management
Bloomberg School of Public Health
Johns Hopkins University
Baltimore

Lawrence R. Curtis
Professor and Head
Department of Environmental and Molecular Toxicology
Oregon State University
Corvallis

Charles N. Haas
L.D. Betz Chair Professor
School of Environmental Science, Engineering, and Policy
Drexel University
Philadelphia

William E. Halperin
Professor and Chair
Department of Preventive Medicine and Community Health
New Jersey Medical School
Newark

Ellen Z. Harrison
Director
Cornell Waste Management Institute
Center for the Environment
Cornell University
Ithaca

John B. Kaneene
Professor of Epidemiology, and
Director
Population Medicine Center
Michigan State University
East Lansing

Greg Kester
Wisconsin State Residuals Coordinator
Wisconsin Department of Natural Resources
Bureau of Watershed Management
Madison

Stephen P. McGrath
Program Leader
Agriculture and Environment Division
Institute for Arable Crops Research Rothamsted
Harpenden, Herts
United Kingdom

Thomas E. McKone
Senior Scientist
Ernest Orlando Lawrence Berkeley National Laboratory
Division of Environmental Health Sciences
School of Public Health
University of California

Berkeley

Ian L. Pepper
Professor
Department of Soil, Water, and Environmental Sciences
University of Arizona
Tucson

Suresh D. Pillai
Associate Professor
Poultry Science Department
Texas A&M University
College Station

Frederick G. Pohland*
Professor and Weidlein Chair of Environmental Engineering
Department of Civil and Environmental Engineering
University of Pittsburgh
Pittsburgh

Robert S. Reimers
Professor
Department of Environmental Health Sciences
School of Public Health and Tropical Medicine
Tulane University
New Orleans

Rosalind A. Schoof
Principal
Gradient Corp.
Mercer Island, Wash.

Donald L. Sparks
Distinguished Professor and Chair
Department of Plant and Soil Sciences
University of Delaware
Newark

Robert C. Spear
Professor
Division of Environmental Health Sciences
School of Public Health
University of California
Berkeley

RESEARCH COUNCIL STAFF

Susan Martel
Study Director

* Member, National Academy of Engineering