

EPA Responses and Activities, USEPA 2002a) of all of the recommendations contained in the NRC report (NRC 2002). The matrix ensured that all recommendations were identified. Once in the matrix, recommendations that were found to be similar in subject matter and intent were placed in a framework to facilitate evaluation.

The Agency categorized the 57 recommendations (four overarching and 53 specific) into eight categories: (1) Survey, (2) Exposure, (3) Risk Assessments, (4) Methods Development, (5) Pathogens, (6) Human Health Studies, (7) Regulatory Activities, and (8) Biosolids Management. EPA's response and planned activities are presented on a category-by-category basis.

#### **VII. EPA's Strategy for Responding to the NRC Recommendations?**

EPA has identified three main objectives for attaining a better understanding of biosolids and reducing the potential for, or reducing the uncertainty related to, human health impact: (1) Update the scientific basis of Part 503 by conducting research in priority areas, (2) strengthen the biosolids program by evaluating results of completed, ongoing, or planned studies both within and outside EPA, and (3) continue ongoing activities for enhancing communication with outside associations and with the public.

##### *Major Short-Term Goals and Priority Actions During FY03 and FY04*

Over the next two years, subject to available resources, the Agency proposes to pursue biosolids activities in the following priority areas:

1. Continue program implementation (regulatory, compliance, and enforcement).
2. Evaluate the state-of-the-science and revise risk assessment methodologies, as appropriate.
3. Review available data, track ongoing studies by researchers outside of EPA, and identify information gaps. Initiate further field studies as needed.
4. Continue ongoing/planned activities relative to exposure, risk assessment, biosolids management, and analytical methods development.
5. Determine what pollutants, if any, warrant further regulation under the CWA.
6. Design and begin conducting a targeted survey that uses information obtained from published pollutant occurrence and effects data, State occurrence data bases, and input received during the public comment period.

7. Conduct a dialogue with other health-based Federal agencies, such as CDC, on the possibility of cooperatively tracking incident reports and investigating whether adverse human health outcomes can be associated with biosolids exposure. The results could help the Agency identify research gaps and, if appropriate, the need for a more comprehensive research plan.

These activities would be aimed at implementing NRC recommendations for reducing the potential for public health impact and updating the scientific basis of Part 503.

##### *Major Longer-Term Goals and Future Priorities (FY05 and Beyond)*

The Agency's proposed long-term biosolids activities depend on results of activities conducted in FY03/FY04 and available resources. The following priority areas are aimed at implementing recommendations for reducing the potential for public health impact:

1. Continue program implementation (regulatory, compliance, and enforcement).
  2. Update the scientific basis of Part 503 by using FY03/04 research or by conducting research in priority areas.
  3. Strengthen the biosolids program by incorporating results of completed, ongoing, or planned research activities both within and outside EPA to possibly include:
    - Quantitative microbial risk assessment.
    - Improved understanding of exposure pathways/scenarios.
    - Molecular tracking study.
  4. Continue activities to establish partnerships and communicate more effectively with other public health-based agencies, outside associations and the public.
- There is considerable relevant work being conducted by others outside of EPA that may help inform and respond to the NRC recommendations. Much of the external work that relates directly to certain NRC recommendations is discussed in this notice and is being used to improve the Agency's biosolids program.

The Agency's approach also includes promoting policy and procedural guidance for ensuring and maximizing the quality of the information disseminated. Completed studies and ongoing research, once compiled, will be reviewed and evaluated for their contribution to EPA's biosolids program in accordance with Information Quality Guidelines (expressed in "Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by

the Environmental Protection Agency" USEPA 2002b). These guidelines stress that information disseminated by EPA should adhere to a basic standard of quality, including objectivity, utility, and integrity.

EPA has developed this notice using its best estimate of FY 2003 resources, which are not finalized, and based on the President's FY 2004 budget. The Agency has assumed the same level of funding for future years, as is typically done.

#### **VIII. EPA Responses to the NRC Recommendations by Category**

##### *A. Survey*

##### **1. Summary of Survey-Related NRC Report Recommendations**

The NRC recommended that the Agency conduct a new national survey of chemicals and pathogens in biosolids. A survey may provide feedback for updating the science and technology of biosolids applied to land. These data would then be used to identify pathogens and additional chemicals for potential regulation and possibly deregulate those that are not, or no longer, found. The NRC recommended several components in designing a new national survey, including collecting data from State program databases, determining the adequacy of analytical detection methods and limits to support risk assessment, evaluating chemicals eliminated previously due to lack of data (e.g., toxicity or exposure) and new chemical categories (e.g., odorants, surfactants and pharmaceuticals) not previously evaluated.

Further, the NRC recommended monitoring environmental media, surveying for pathogens in both raw sewage sludge and treated sewage sludge managed through the various processes recommended in Part 503, assessing multiple species of certain metals (e.g., mercury and arsenic) that have different toxicity profiles for human health, including infants and children, and analyzing a broad spectrum of pathogens in biosolids or environmental media adjacent to final use or disposal sites.

In addition, the NRC recommended that the Agency verify the adequacy of treatment and management practices. For example, to verify that Class A and B (as described in Part 503) treatment processes perform as assumed by engineering and design principles, EPA could determine pathogen density and elimination across treatment processes in biosolids and environmental media over time and examine management practices to ensure that risk-assessment