Saving Soil

Biosolids Recycling in New England

New England Biosolids and Residuals Association
September 2001

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A report of the
New England Biosolids and Residuals Association

Publication support provided by:

Camp, Dresser & McKee, Inc.
Massachusetts Water Resources Authority
New England Organics
Synagro
White Mountain Resource Management, Inc.

…and the membership of NEBRA

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Acknowledgements

The authors thank the following for their assistance with this report:

Earle M. Chesley, Roger Descoteaux, Larry Spencer and Jim Taylor, Merrimack Public Works Wastewater Division, New Hampshire
Charley Hanson, White Mountain Resource Management, Inc.
Cathy Jamieson and Ernie Kelley, Vermont Department of Environmental Conservation
Geoff Kuter, Agresource Inc., Amesbury, Massachusetts
Robert Norwood, Connecticut Department of Environmental Protection
Kristen A. Patneaude and Richard Mills, Massachusetts Water Resources Authority, Boston, Massachusetts
Philip Pickering, Ogunquit Sewer District, Maine
Alex Pinto, Rhode Island Department of Environmental Protection
Larry Polese, Massachusetts Department of Environmental Protection
Michael Rainey, New Hampshire Department of Environmental Services
Mac Richardson, Lewiston-Auburn Water Pollution Control Authority, Lewiston, Maine
Robert Wells, Middlebury Waste Water Treatment Facility, Vermont
David Wright, Maine Department of Environmental Protection

And the following reviewers: Andrew Carpenter (White Mountain Resource Management, Inc.), Patrick Cloutier (South Portland WWT), Shelagh Connelly (White Mountain Resource Management, Inc.), John Donovan (Camp, Dresser & McKee), Cathy Jamieson (Vermont DEC), James Jutras (Essex Junction, VT WWTF), Kristen Patneaude (Massachusetts Water Resources Authority), Alex Pinto (RI DEP), and Clayton (Mac) Richardson (Lewiston-Auburn Water Pollution Control Authority).

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Over the past several years, public interest in the recycling of biosolids has grown in New England and in several other regions of the United States. In particular, concerns have been raised about the potential impacts of biosolids recycling on public health and the environment. This has led to a demand for accurate information and data regarding current biosolids recycling practices and the quality of biosolids products. In an effort to meet this demand, the New England Biosolids and Residuals Association (NEBRA) has created this report, *Saving Soil: Biosolids Recycling in New England*.

This report provides background information about biosolids recycling, applicable regulations, and state-by-state summaries of recent developments in biosolids management in the region. Included are definitions of common terms, explanatory charts, tables, and graphs, and five specific case studies of representative New England biosolids recycling operations.

Saving Soil provides the best current estimates of how biosolids are managed in each of the New England states, including the percentages of biosolids landfilled, incinerated, and recycled through heat drying, composting, or land application.

There are about 600 publicly owned wastewater treatment facilities throughout New England that managed approximately 425,000 dry tons of sewage sludge in 2000. Just over one-fifth of the regional sewage sludge total was recycled as biosolids and soil amendment products. Of the more than 93,000 dry tons of biosolids recycled in 2000, 18.5% were treated to Class B standards for bulk use on agricultural land and 81.5% were treated to Class A standards for general landscape and gardening use through composting or heat drying.

If they had been thrown away, the New England biosolids recycled in 2000 would have required an estimated 350,000 cubic yards of landfill space (i.e. 6 landfills, each the size of a football field and 33 feet deep). In addition, New England biosolids recycled in 2000 provided an estimated 3.7 million pounds of nitrogen (assuming a conservative average biosolids content of 2% nitrogen). NEBRA estimates that an equivalent amount of chemical fertilizer nitrogen would have cost $1.3 million.

Individual biosolids recycling rates and systems vary within New England. In recent years, Maine has had the highest recycling rate in the region, with more than 90% of its sewage sludge treated for beneficial use in agricultural and general landscaping applications. Vermont recycles about 75% of its sewage sludge, primarily through composting. New Hampshire's rate of recycling has declined from 50% in 1996 to 30% in 2000, due primarily to public scrutiny and stricter state and local biosolids land application regulations. Massachusetts recycles about 20% of the sewage sludge produced in the state, almost all of it as Class A material, including a large proportion of

Boston's Massachusetts Water Resources Authority (MWRA) heat dried "Bay State Fertilizer." Connecticut and Rhode Island each have recycling rates below 10%.

Much of the *Saving Soil* report focuses on the quality of New England's recycled biosolids, including chemical and trace metals data. Analysis of seven years of data for 37 New England biosolids products shows that average concentrations of the ten metals for which testing is typically required are remarkably consistent across the region.

NEBRA found that state averages of trace metals in biosolids from recent testing data are uniformly well within the federal Exceptional Quality ("EQ:" Part 503, Table 3) standards and individual states' strictest standards. Further analysis of the trace metals data shows a downward trend in trace metals levels over recent years as improved industrial pretreatment, pollution prevention, and other programs continue to reduce the concentration of trace metals in wastewater. The data also shows that, from 1994 to 2000, the average concentrations of the trace metals of greatest concern to the public (mercury, cadmium, arsenic, and lead) are also very low.

Saving Soil notes that some decline in biosolids recycling rates has occurred in most New England states in the past few years, despite significant improvements and investments in biosolids recycling programs. The future of biosolids recycling in New England will depend on further public acceptance, continuing growth in demand for biosolids products, and other factors.