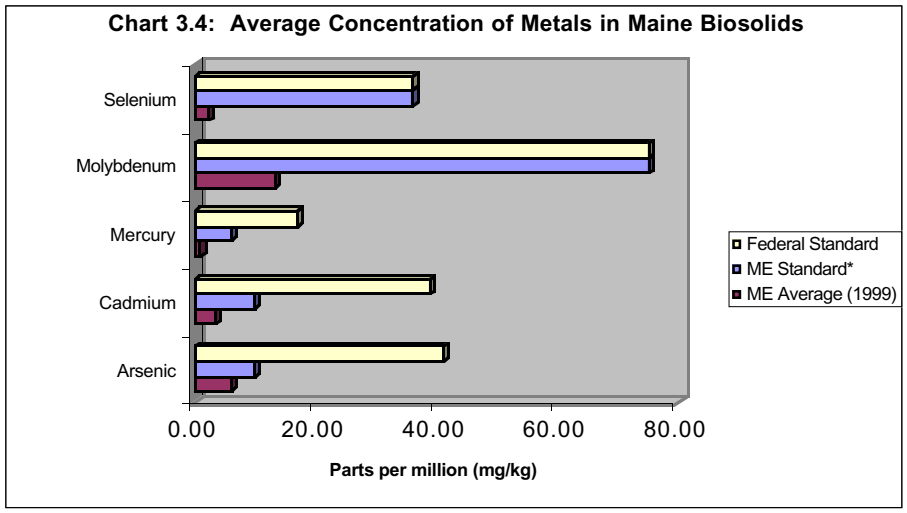
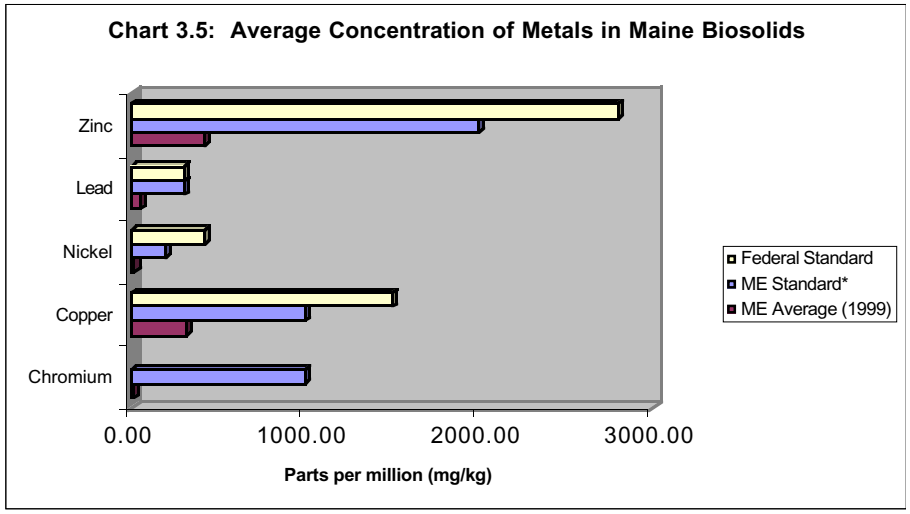
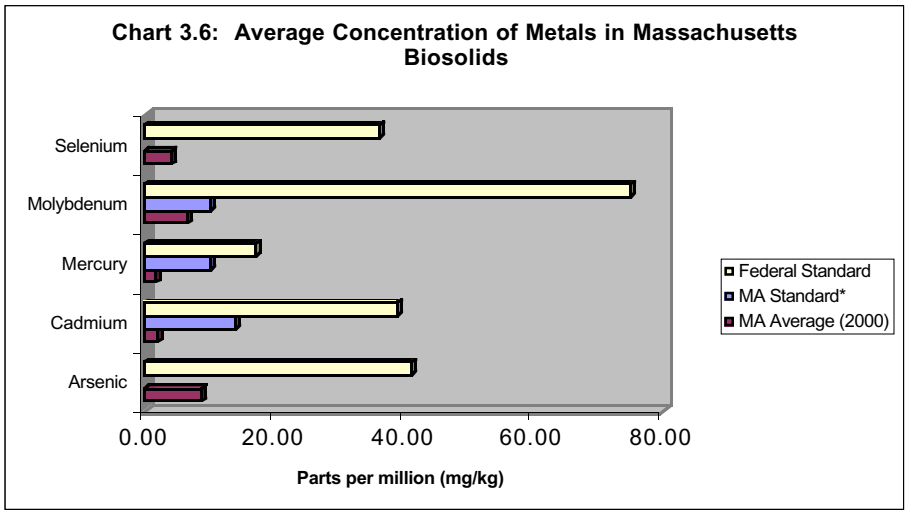
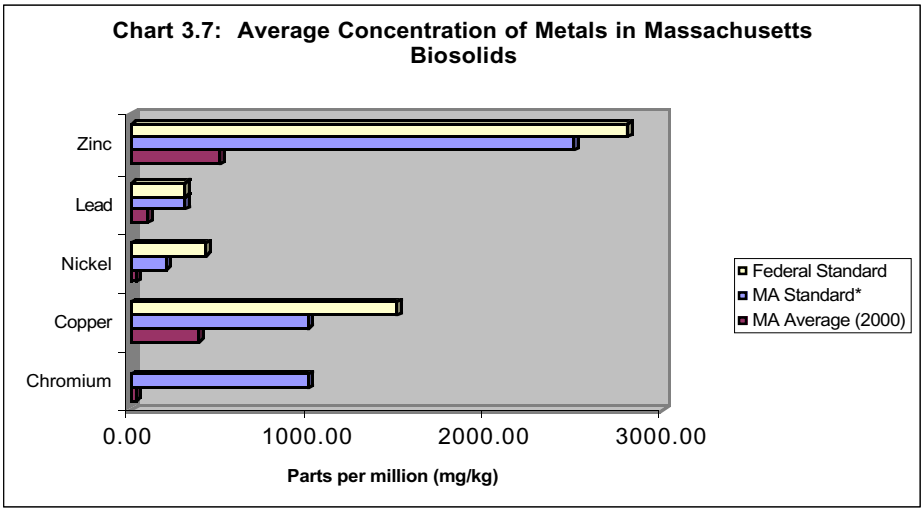




ME lowest "screening concentrations," Chapter 419 regulations, Table 419.3, column A.

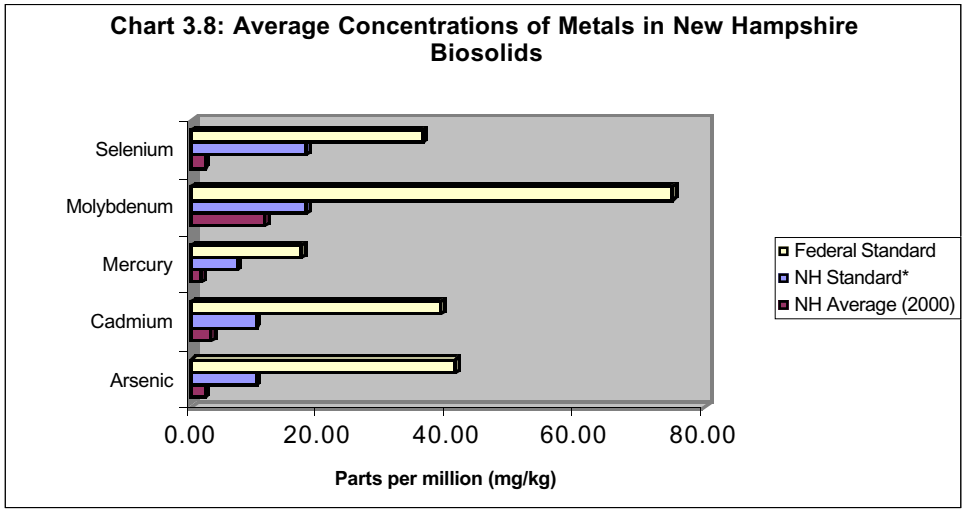
<u>NOTE</u>: The state and federal limits shown for comparison are the strictest standards.

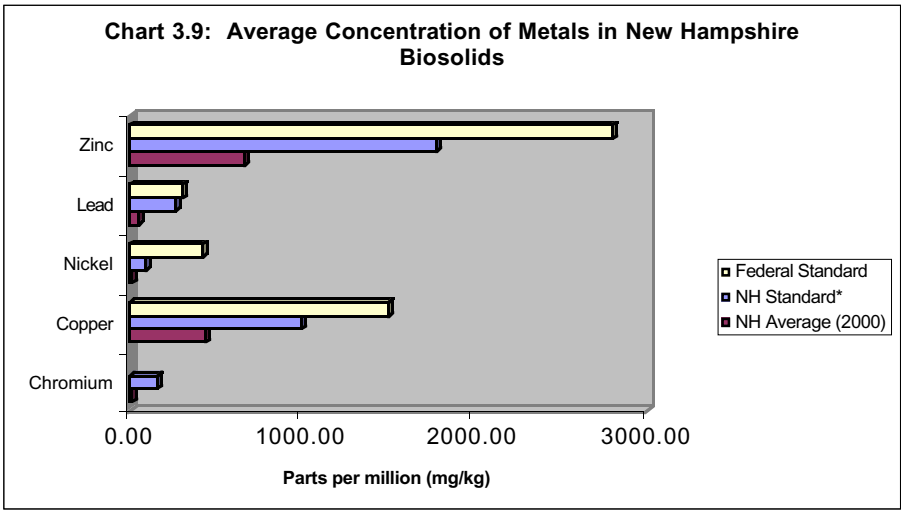




*MA lowest "Type 1 Sludge" standards, regulations Table 32.12(2)(a).

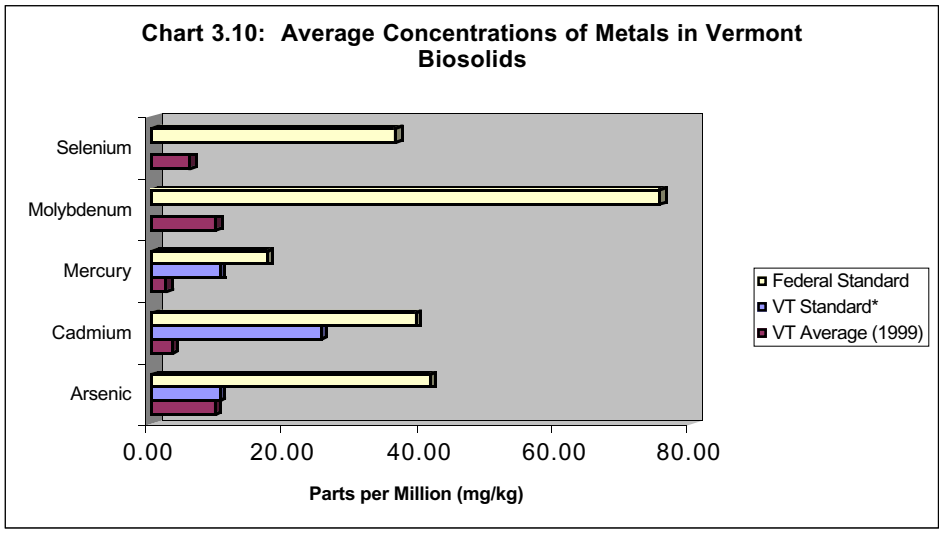
NOTE: The state and federal limits shown for comparison are the strictest standards.

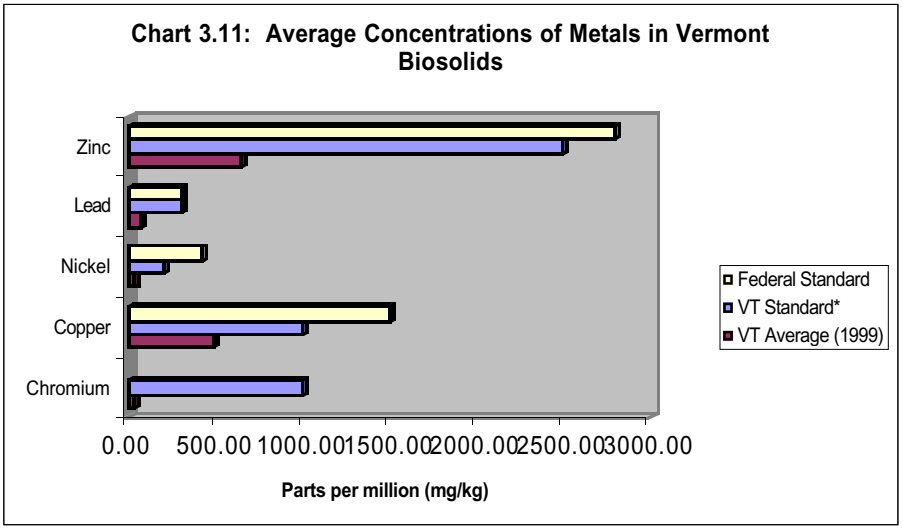




*NH "low metals biosolids" standards, regulations Env-Ws 807.03(h).

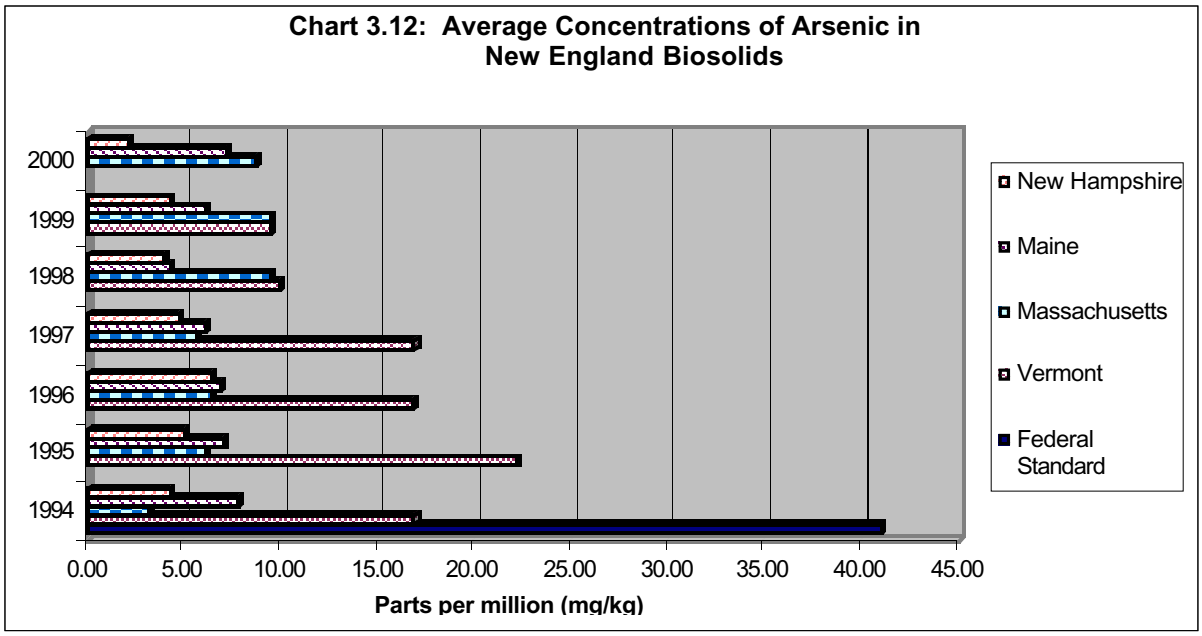
NOTE: The state and federal limits shown for comparison are the strictest standards.

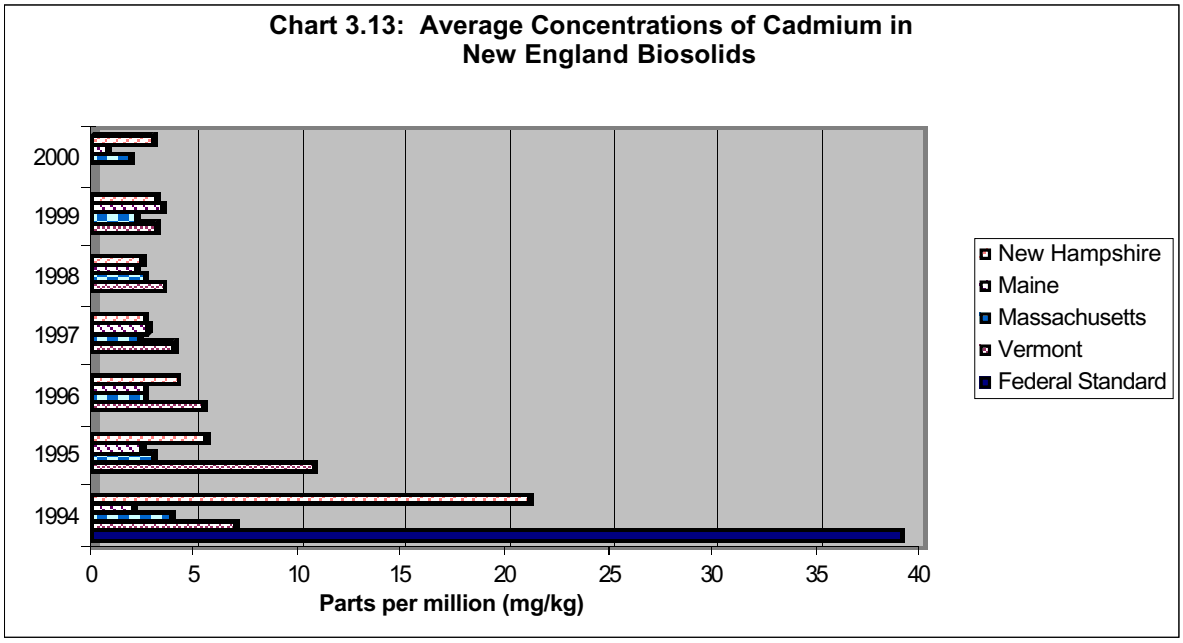




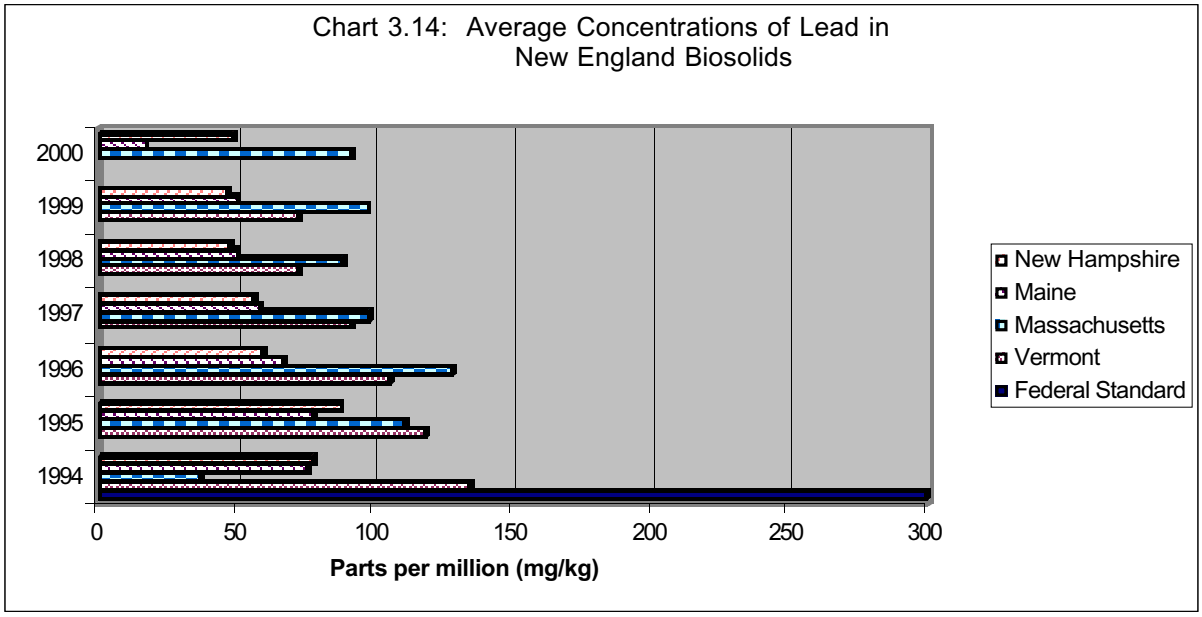
*VT solid waste regulations subchapter 7, 6-702(a)(10)(B)

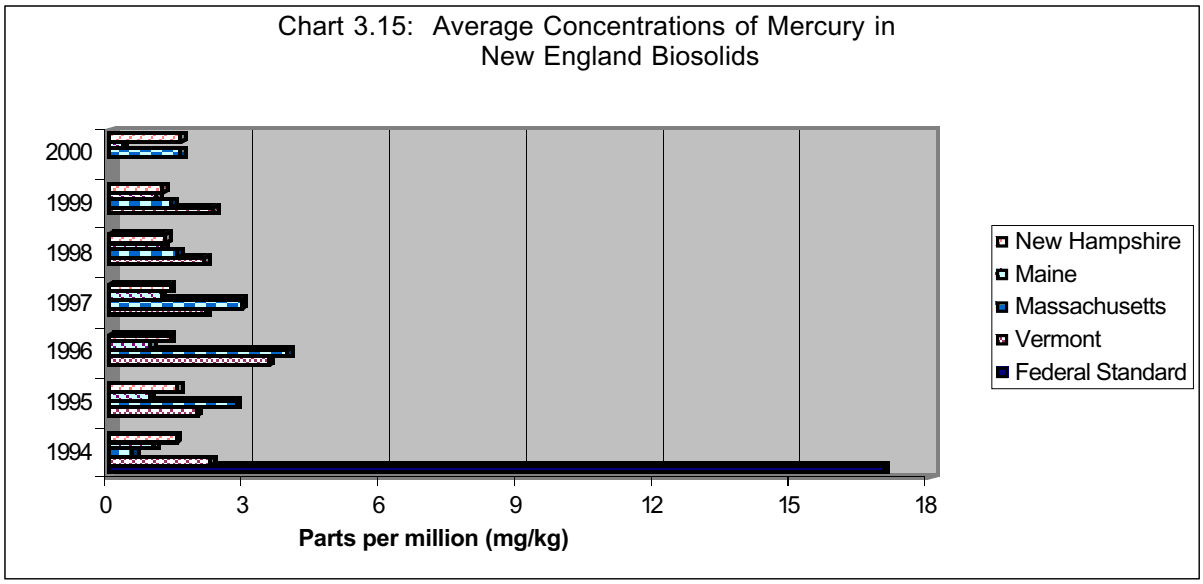
NOTE: The state and federal limits shown for comparison are the strictest standards.





NOTE: Federal standards shown for comparison are the strictest (EQ) standards.





NOTE: Federal standards shown for comparison are the strictest (EQ) standards.

3.6 More About the Trace Metals Data

Note that trace metals data–like any test data–is influenced over time by changes in test methods, especially when such very small traces of metals are being tested for. Thus, for instance, the apparent decline in recent years, in arsenic in Vermont biosolids (Chart 3.12) is likely due to the ability of laboratories to detect smaller amounts.

Why are *averages* presented in this report? Mostly because of the volume of data. But also because averages are what biosolids recycling involves:

- The wastewater and sewage sludge treatment processes create *average* materials through constant mixing of a continuous flow of wastewater and biosolids.
- The process for collecting biosolids samples for testing involves creating an *average* composite sample representative of biosolids from one day to a few months, depending on the size of the facility.
- And, over time, *average* biosolids are what are applied to soils: in practice, in the marketplace, over many years, any one particular site will most likely receive biosolids from different facilities and different times. Thus, the application of trace contaminants to the soil will be an *average*.

The averaging processes involved in biosolids production and distribution help ensure that trace contaminants are unlikely to accumulate rapidly at any particular end-use site.

More information about the compilation and presentation of trace metals data is provided in the appendix.

IV. Conclusions

The data compiled and reviewed for this report indicate that the biosolids being recycled in New England are of relatively high quality with regard to trace metals and (based on limited data) trace chemicals (see also the appendix).

Clearly, it will be useful for biosolids managers and the public to continue to have ever greater access to this kind of data and summary information.

This report is only one piece in the process of improving the availability of information about biosolids recycling in New England. Future efforts may include on-line data availability and improved access to individual facility records. These are the kinds of open communications that some of those critical of the biosolids management industry have requested. As *public* utilities, wastewater and biosolids facilities are responding.

Given the data collected in this report, and given what is currently known about the potential impacts of trace contaminants on soils, plants, animals, and humans, it is reasonable to conclude that biosolids currently in use throughout New England present very low risk to public health and the environment.

Additionally, based on the fact that demand is increasing for biosolids products in the marketplace, it seems that farmers, growers, and landscapers are finding that biosolids products are of value and are beneficial.

But this report does not intend to make decisions for its readers. This is a presentation of information--and then it is up to the public to decide how well New England's biosolids programs are doing. Because each facility and program is somewhat different, it may also be helpful to get to know your local biosolids management program. In general, these public facilities are glad to have visitors and share additional information.

The ultimate quality of biosolids products, and the programs that recycle biosolids back to the land, depend on the care and professionalism of those managing their production and end-use. Wastewater operators are certified water quality professionals with continuing education requirements in all six New England states. They follow strict, science-based protocols. They are public servants who have chosen to work in one of the most important environmental professions.

Many water quality and biosolids professionals recognize that improvement needs to be constant. Over the past few years, the wastewater treatment and biosolids management industry nationwide has recognized this fact and that the most successful biosolids management programs have been aided, in part, by constant attention to detail and continual improvement. The Environmental Management System (EMS) program for biosolids mentioned in Chapter 2 will help encourage more wastewater and biosolids management programs to recognize the importance of continual improvement. (For more about the EMS program for biosolids, see the National Biosolids Partnership website at www.biosolids.org).

As the biosolids management industry focuses more and more on the quality of biosolids products and biosolids programs, it is hoped that the kind of information included in this report will be that much more available and "user-friendly." Information is a powerful tool for understanding. The public has every right to as much information about the biosolids programs in their communities as possible. NEBRA will continue to work to provide such information.

For questions, other information, or additional details, contact the NEBRA office by phone at 603-323-7654 or by email at info@nebiosolids.org.