The United States National Biosolids Partnership: Improving Biosolids Management

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Abstract: The U.S. National Biosolids Partnership (NBP), an alliance of the U.S. Environmental Protection Agency (USEPA), National Association of Clean Water Agencies (NACWA) and Water Environment Federation (WEF), was formed in 1997 in response to public acceptance issues dealing with biosolids management. The United States Congress provides funding to assist public agencies to improve existing biosolids management programs to maintain/achieve public support. The key to a successful program is systematic management and an independent third party audit to assure organizations are managing biosolids to meet the requirements of an excellent biosolids management program.

The NBP program utilizes the ISO 14001 Environmental Management System principles. The program has defined 17 components of excellent biosolids management and the independent third party audit program. One hundred organizations are participating in the program and 16 agencies have been “certified” though a third party audit. The smallest agency serves a community of 200 people and the largest treats over a billion gallons a day. Participants are benefiting through cost savings, efficiencies and better public trust.

Keywords: Environmental Management System (EMS); independent third party audit; ISO 14001; National Biosolids Partnership (NBP)

HISTORY

In 1993, the U.S. Environmental Protection Agency (EPA) promulgated the federal Part 503 regulations to protect human health and the environment. This rule, in addition to state and local regulations, has increased focus on biosolids management programs across the U.S. In addition to meeting regulatory requirements, biosolids managers must deal with a multitude of non-regulatory issues, such as effective odor control on and off the treatment plant site, budget management, and increasing pressure to become more competitive. These demands pose formidable challenges to biosolids managers.

In 1997, the National Association of Clean Water Agencies (NACWA), the U.S. Environmental Protection Agency (EPA), and the Water Environment Federation (WEF) agreed to form the National Biosolids Partnership (NBP). The NBP is a not-for-profit alliance whose purpose is to promote safe, environmentally sound, and publicly acceptable biosolids management (for details, see NBP’s website at www.biosolids.org). Its major effort has been developing a voluntary environmental management system (EMS) program for wastewater organizations to improve existing biosolids management programs. The EMS is the management “structure” that supports continual improvement. The NBP Program not only helps to ensure legal and regulatory compliance, but also addresses the unregulated issues, such as odor, noise, and traffic that can affect a community.

The NBP Program is designed to be “practice-neutral.” It includes all biosolids management practices, such as landfilling, thermal treatment, land application and the production of Class A products, like compost and pellets. Biosolids producers, service contractors, and product users – together with stakeholders from regulatory agencies, universities, the farming community, and environmental organizations – have had input into shaping the NBP priorities and guidance documents. The NBP supports public-private partnerships – where public agencies and private companies work together as partners in the NBP program. In certain cases, private companies that are classified as a “preparer” pursuant to EPA regulation can participate.

The Program is available to any size facility—from the very small to very large.
NBP PROVIDES THE EMS MANAGEMENT TOOLS, TRAINING, AND THIRD-PARTY AUDITS

The NBP has sponsored several initiatives designed to promote responsible biosolids management through public-private partnerships with the goal of improving existing biosolids management programs. The cornerstone of these initiatives has been the development and implementation of good management through the use of the NBP Environmental Management System (EMS) Program. The strong belief that biosolids management organizations will benefit from adopting an EMS as part of their overall management programs has been validated by testimonials and results during the first few years of NBP operation. The anticipated and real benefits of adopting an EMS to enhance biosolids management programs have been numerous, including enhanced environmental performance, regulatory compliance, quality management practices, reduced cost, improved consistency of operations and biosolids quality, and most importantly, improved relations and credibility with interested parties in local communities.

The EMS Tools

A stakeholder group of more than 100 people with a variety of backgrounds provided guidance to the development of the EMS tools including a Code of Good Practice, a Manual of Good Practice for Design/Operation & Management, an EMS Guidance Manual, EMS Elements, and an Auditor Guidance Document for third-party audits. These collective documents are known as the “EMS Blueprint.” The “Blueprint” was developed based on the NBP’s guiding principal to establish and maintain credibility of local biosolids programs. All tools, as well as other user-friendly information and guidance, are available at www.biosolids.org.

The EMS elements are the basic NBP management “requirements” that must be met by all participants. The requirements are typical good manage techniques that are commonly practiced such as Roles and Responsibilities and Training. The key to the EMS is that all the 17 elements of excellent management work together as a “system”.

The Training

Each participating agency (there now are 100) receives guidance and training through technical assistance and consultation, interactive workshop series (three workshops), and on-call NBP staff support over a 12-month period that helps an organization meet the NBP requirements. When the EMS is operational, there is a six-month time frame for the agency to operate within the EMS Structure before the third party audit.

This training package offered by the NBP helps to guide the agency through the steps required for the EMS process:

• Commit to the Code of Good Practice, including the development and implementation of an EMS
• Conduct an initial EMS assessment, with the help of a technical “account executive”
• Develop and implement the EMS
• Conduct first internal audit
• Take corrective action
• Undergo third-party audit

In an effort to further prepare agencies for the continual improvement phase of their EMS (“life” after the first audit), the NBP offers a fourth “workshop” to the workshop series. This workshop provides organizations with the opportunity for additional networking, to share real-life experiences and successes, and to receive training to enhance the internal and interim audit process and to help continue to streamline the program.

The Independent Third-Party Audit

A key component of the NBP Program was the development of an independent, third party EMS verification component to assist organizations to meet the goal of continual improvement. The independent third party audit brings several benefits including a review of the organization’s program to assess if an organization is meeting the national requirements for an excellent biosolids management program and “doing what they said they were doing”. This brings credibility to management from elected officials, stakeholders, regulators and the
general public. Organizations must meet NBP management requirements and consistently manage local programs accordingly. Organizations interested in receiving formal recognition of their Biosolids Management Program and of their participation in the NBP biosolids program must achieve verification of their EMS through the NBP third party verification process.

The objectives of third party EMS verification are the following:

- Verify that the organization’s Biosolids Management Program and EMS meets NBP expectations and requirements.
- Verify that activities are being implemented in practice as well as on paper.
- Assure environmentally sound performance of biosolids management practices.
- Verify public participation in the management program.

To ensure credibility of the program, the third party EMS verification process requires that the audit companies (each certified by the NBP as well as by the American National Accreditation Board (ANAB)) negotiate a contract and scope of work directly with the NBP and receive payment from the NBP, not from the biosolids organizations being audited in order to avoid any perception of conflict of interest. Moreover, the NBP established an appeals board to review and make final decisions on disagreements between independent auditors and biosolids organizations.

An annual formal interim verification audit is required each year to maintain NBP Certification.

**NBP OFFERS REGIONAL AND LOCAL FOCUS**

The NBP focuses on providing objective, technically accurate and environmentally sound biosolids management support to participants from the 16,000 municipal wastewater treatment facilities and private companies. The support (both technical and educational) helps each organization to establish environmental performance goals that aid in identifying potential weaknesses, meeting regulatory compliance obligations, and creating meaningful opportunities for public participation.

Over the past five years, more than 6 millions dollars have been spent on technical and educational support for the 100 public agencies that have pursued or are pursuing certification. Congress has continued to support the program since its inception. The NBP and the participants have continued to streamline the program to make it more cost effective, practical and doable. These early pioneering organizations have contributed significantly to have this program work efficiently and effectively for future participating agencies. There have been many learnings that have been incorporated into the overall program. One significant learning was the approach to provide technical assistance and training. The early approach was to hold the training workshops at WEF headquarters in Virginia primarily due to logistics. Some of the feedback suggested the NBP should consider getting a “class” of agencies to work together in a region at the same time and to shorten the EMS development timeframe.

In an effort to involve regional organizations familiar with biosolids into the education and training process, the NBP initiated a regional program in the state of Michigan through the offices of the Michigan Water Environment Association in late 2004. The concept of a regional “Class” of agencies working together in the same region was developed. A Memorandum of Understanding was developed that outlined the responsibilities of each organization. The NBP is dependent upon the regional association members to help recruit new participants and the NBP made the technical assistance and workshops available in Michigan. Travel expenses were greatly reduced and more agency staff persons could participate in the workshops since they were able to drive to the workshops and travel didn’t require expensive airfares. In some cases, as many as 10 staff people from the same organization attended workshops. By having several staff persons participate in the common training, this new approach helped the NBP avoid the problem of having only one person from an agency become the “trainer” when they returned to their agency. The participants in the Class of 2005 were primarily from Michigan with some from other parts of the country.
In early 2006, this effort was expanded into Pacific Northwest through the sponsorship with four associations—Northwest Biosolids Management Association, the Pacific Northwest Clean Water Association, Oregon Association of Clean Water Agencies and the Evergreen Rural Water of Washington. Once again the model is working well and continuing to improve. Many participants in the class are able to work together developing their EMS since they are geographically located in the same area and the time frame was shortened to 12 months for EMS completion.

A focus on the Pacific Northwest was working with smaller agencies since the NBP had considerable experience working with larger agencies. Smaller agencies have few staff persons and presented some unique challenges. There was the need to show the “final product/EMS that would meet the NBP requirements.” The only examples that NBP had were from the larger successful agencies that had been certified by NBP. The NBP worked with the sponsors to develop an example of a small agency EMS program and five smaller agencies in the northwest have been testing and streamlining the final product that is on www.biosolids.org. Three smaller agencies in Washington are on the same schedule for completion and are planning to have their third party audits conducted at the same time. This should result in reduced audit costs.

Another program initiated in the Pacific Northwest is the sharing of internal audit personnel. The Northwest Biosolids Management Association established a continuous improvement committee. The Committee members help each other by forming teams that can conduct internal audits and has been very successful.

In 2006, the NBP continued the regional approach with organizations in the New England and the Kentucky-Tennessee regions. In the New England region, the associations include the North East Biosolids and Residual Association, the New England Water Environment Association and the Maine Wastewater Control Association. The Kentucky-Tennessee region is sponsored by the Kentucky-Tennessee Water Environment Association. Eleven public agencies and three private companies are participating in the new class for 2007.

Three private companies have joined the program at their own expense. Workshops are accessible to the private companies since they are public meetings.

**NBP UPDATE**

As of April 2007, 16 agencies have completed their rigorous third-party audits and have received NBP Certification.

The NBP recognizes these agencies’ achievements, and recently adopted a “tiered recognition” approach. There are four levels of recognition:

- **Tier 1**: Commitment to the Code of Good Practice, with the ultimate goal of third party verification and NBP certification-87 organizations
- **Tier 2**: EMS Elements are in place and operational and awaiting third-party audit-4 organizations
- **Tier 3**: Third-party verification and NBP certification-16 organizations
- **Tier 4**: Completion of interim audits to maintain audit company verification and NBP certification-10 organizations (Platinum Level)

Although many of the benefits of the program are subjective in nature, agency representatives are quick to point out the positive and quantifiable benefits accrued in their efforts to obtain certification. While the optimization of management performance and time-saving features of the program may not be easy to quantify, the direct cost savings and return on investment are. And improved communications, in addition to increased public involvement and acceptance, are long-term benefits, as are effective transfer of knowledge, indirect cost savings, and an employee sense of ownership.
CONCLUSIONS

Public and private biosolids organizations need to continue to improve environmental performance and maintain credibility with their communities and stakeholders even in times of decreasing financial resources. Achieving and maintaining public acceptance of biosolids management practices is a major challenge to wastewater treatment organizations. The NBP environmental management system is a tool for organizations to improve their biosolids management to achieve increased environmental performance in the face of budget demands.

The program continues to be streamlined, more efficient and effective. Agencies that have been certified are really pleased with the “value added” aspects of the independent third party audit. The NBP EMS tools are available to the public and found on the NBP website.