

---

*Guide*

# Biosolids EMS Implementation Planning Visit

For agencies participating in the National Biosolids Partnership Environmental  
Management System Program

Prepared for



Updated April 2006

Prepared by



**ROSS & ASSOCIATES**  
ENVIRONMENTAL CONSULTING, LTD.

# Overview of the NBP EMS Implementation Planning Visit

---

This document been developed to provide you and your account executive with the necessary background information to prepare for your upcoming environmental management system (EMS) implementation planning visit. Included in this package are the following items:

1. **Purpose and Background** – A description of the purpose of the visit and background on the NBP EMS program and the implementation process
2. **Proposed Agenda** – What you can expect for the one and one-half (1 ½) day visit
3. **Preparation and Applying the Results** – Suggestions on how to prepare in advance of the visit and what to do with the results
4. **Questionnaire** – A list of discussion questions that your account executive will lead you through during the visit
5. **Additional Resources and Glossary of EMS Terms** – Where to find additional resources from the NBP and definitions of some key terms to become familiar with

## Purpose of the EMS Implementation Planning Visit

Key objectives of the EMS implementation planning visit are listed below.

1. To provide an overview of the EMS development and implementation process
2. To begin to build a foundation for cooperation among the EMS implementation team members, including your NBP representative, cross-functional team members, and contractors
3. To develop your EMS implementation plan



## Background

Your agency has committed to participate in the National Biosolids Partnership's (NBP) EMS Program. The NBP is a not-for-profit alliance formed in 1997 with the Association of Metropolitan Sewerage Agencies (AMSA) (now the National Association of Clean Water Agencies [NACWA]), Water Environment Federation (WEF), and U.S. Environmental Protection Agency (EPA). The NBP is committed to developing and advancing environmentally sound and sustainable biosolids management practices that augment

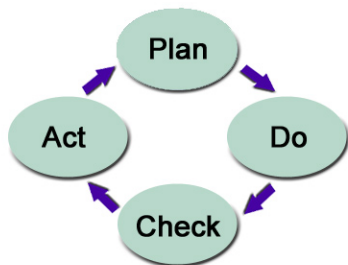
regulatory compliance. The NBP promotes public participation in biosolids programs to enhance the credibility and public acceptance of beneficial reuse of biosolids.

One of the NBP's goals is to help foster environmentally sound management programs to promote public acceptance of biosolids. Biosolids managers face tremendous challenges dealing with public awareness and concerns, managing contractors, complying with regulations, and enhancing program competitiveness. An environmental management system (EMS) provides a strategic framework for addressing those challenges.

## What is an EMS? How Does It Foster Public Acceptance?

An EMS is a management framework for reducing environmental impacts and improving organizational performance over time. Implementing an EMS is voluntary; therefore, the EMS framework can be adapted to support the needs, priorities, and circumstances of the implementing organization. The NBP EMS framework supports continual improvement in four key outcome areas that will help an organization foster **public acceptance**. These outcome areas are listed below.

- Quality management practices
- Regulatory compliance
- Better relations with interested parties
- Environmental performance



The EMS approach is based on the "plan-do-check-act" continual improvement cycle of total quality management (TQM) and involves a set of planning activities, procedures, performance monitoring and review to allow an organization to improve business processes over time.

## How Does an EMS Work?

The NBP developed an EMS framework that consists of 17 building blocks, or elements, for developing and implementing an EMS. Taken together, these elements provide a structure for helping your organization:

- Establish guiding principles for your biosolids management program,
- Set goals for continual improvement,
- Implement procedures for ensuring consistent product and service quality,
- Engage stakeholders to demonstrate that your program is committed to protecting the environment and carrying out your stated mission,
- Correct and prevent problems, and

- Measure and report performance improvements, and act on lessons learned and opportunities for additional improvements.

The 17 Elements, shown below, are grouped into five categories.

<ul style="list-style-type: none"> <li>• <b>Overview and Policy</b> <ul style="list-style-type: none"> <li>– Element 1 — EMS Manual</li> <li>– Element 2 — Biosolids Management Policy</li> </ul> </li> <li>• <b>Planning</b> <ul style="list-style-type: none"> <li>– Element 3 — Critical Control Points</li> <li>– Element 4 — Legal and Other Requirements</li> <li>– Element 5 — Goals and Objectives</li> <li>– Element 6 — Public Participation in Planning</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <b>Implementation</b> <ul style="list-style-type: none"> <li>– Element 7 — Roles and Responsibilities</li> <li>– Element 8 — Training</li> <li>– Element 9 — Communication</li> <li>– Element 10 — Operational Control of Critical Control Points</li> <li>– Element 11 — Emergency Preparedness and Response</li> <li>– Element 12 — EMS Documentation, Document Control, and Recordkeeping</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <b>Measurement and Corrective Action</b> <ul style="list-style-type: none"> <li>– Element 13 — Monitoring and Measurement</li> <li>– Element 14 — Nonconformances: Preventive and Corrective Action</li> <li>– Element 15 — Biosolids Management Program Performance Report</li> <li>– Element 16 — Internal EMS Audit</li> </ul> </li> <li>• <b>Management Review</b> <ul style="list-style-type: none"> <li>– Element 17 — Management Review</li> </ul> </li> </ul>
---	--	--

## Ensuring Consistent Product and Service Quality

The success of a biosolids program depends primarily on the production of a *quality* biosolids product. The NBP uses the term “biosolids value chain” to describe the sequence of events from pretreatment through use/disposal of the biosolids – all of which affect the quality of the final product.

The biosolids value chain is different for each wastewater treatment plant. Focusing on the biosolids value chain helps an agency define exactly how it produces its biosolids product and what key processes it needs to manage to ensure quality requirements are met. The focused evaluation of your biosolids quality and the supporting processes in your biosolids value chain are the foundation for building a practical and effective EMS.

By “**beginning with the end in mind**” and identifying your biosolids quality and use/disposal requirements, you can more easily define your critical control points and develop an EMS that focuses on the management and control of those processes and activities.

### The Biosolids Value Chain



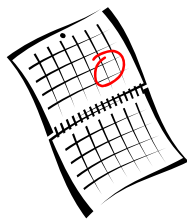
*The foundation of a successful biosolids management program is accurate assessment and identification of your critical control points, around which you can build your EMS.*

# Overview of Agenda for the Visit

---

Your account executive will contact you to arrange a mutually satisfactory date to conduct your EMS implementation planning visit. The visit is an important first step to developing your EMS, and it should be conducted before you attend your first NBP training workshop. The EMS implementation planning visit takes place over approximately two days. Ideally, it should begin no later than 9:00 a.m. on Day 1 to make the visit as productive as possible.

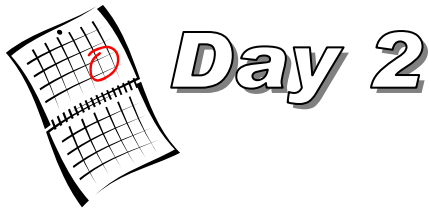
This visit is intended to be informational, interactive, and enjoyable. Following is the proposed agenda for the EMS implementation planning visit. This agenda can be adjusted as needed (see Step 5 of “Preparing for the Visit and Applying Results”).



## Day 1

Activity / Attendees	Objectives	Time
<b>Segment 1 – Introduction</b> Suggested attendees – EMS coordinator, EMS implementation team	<ul style="list-style-type: none"> <li>• Get to know everyone</li> <li>• Understand purpose and focus of visit</li> <li>• Gain agreement on agenda and outcomes of visit</li> </ul>	8-9 am
<b>Segment 2 – Overview of National Biosolids Partnership and EMS Program</b> Suggested attendees – EMS coordinator, EMS implementation team, management representative(s)	<ul style="list-style-type: none"> <li>• Understand current biosolids challenges and NBP purpose and offerings</li> <li>• Understand the NBP’s expectations and assistance available to help you</li> <li>• Understand the main components of an EMS</li> <li>• Discuss management objectives for participating in the program</li> </ul>	9-10:30 am
<b>Segment 3 – EMS Interview and Group Discussion</b> Suggested attendees – EMS coordinator, EMS implementation team	<ul style="list-style-type: none"> <li>• Conduct interview and discussion</li> <li>• Talk about challenges and opportunities for improvement</li> <li>• Establish the “baseline” from which to determine biosolids EMS needs</li> </ul>	10:30 -12 pm
<b>Lunch</b>		12 – 1pm

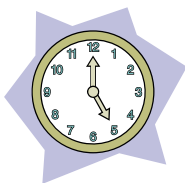
<p><b>Segment 4 – EMS implementation process</b></p> <p>Suggested attendees – EMS coordinator, EMS implementation team</p>	<ul style="list-style-type: none"> <li>• Go through EMS implementation plan, assign responsibilities, set target dates</li> </ul>	<p>1pm – 2:30 pm</p>
<p><b>Segment 5 – Overview of Agency’s Biosolids Management Program</b></p> <p>Suggested attendees – EMS coordinator</p>	<ul style="list-style-type: none"> <li>• Tour the facility</li> <li>• Discuss biosolids value chain and key activities and processes for maintaining quality “beginning with the end in mind”</li> <li>• Understand the agency’s current biosolids program – challenges and successes</li> </ul>	<p>2:30pm – 4pm</p>



Activity / Attendees	Objectives	Time
<p><b>Segment 6 – Working sessions on near term tasks</b></p> <p>Suggested attendees – EMS coordinator, EMS implementation team</p>	<ul style="list-style-type: none"> <li>• Endorse / sign-off on implementation plan</li> <li>• Discuss policy</li> <li>• Identify Critical Control Points and Operational Controls</li> </ul> <p><b>Optional activities:</b></p> <ul style="list-style-type: none"> <li>• Identify interested parties</li> <li>• Draft goals and objectives</li> </ul>	<p>8am – 12 noon</p>

# Preparing for the Visit and Applying Results

---



## Getting Ready

Following are the steps you and your account executive should take to prepare for the implementation planning visit. Preparing well will help everything go smoothly and make the most productive use of your agency's valuable resources: staff, time, money, and motivation.

### 1 Appoint an EMS coordinator and assemble your EMS team

Appoint an EMS coordinator if you have not already done so, and select a **cross-functional team** of individuals involved in your biosolids management activities, including representatives from your agency's industrial pretreatment program, WWTP and biosolids treatment operations, those responsible for storage, transportation and final use/disposal of biosolids, **including contractors**. This implementation planning visit is a good opportunity to engage your team and senior management in gaining a better understanding of the EMS process. **Ideally, your team of individuals will be the same group that participates in the EMS development and implementation process.**

### 2 Review this document

Cross-functional team members should review the questions in this EMS Implementation Planning Visit Instructions and Questionnaire and be prepared to discuss them prior to the EMS implementation planning visit. Your agency may not be able to answer every question. For example, it is acceptable if the answer is "No, we don't have a procedure for that yet," or "This is not in place." It all depends on how far along you are in developing your EMS.

### 3 Identify and gather biosolids management and related program documents

Your account executive will review representative biosolids management program documents and materials. Examples include policies, procedures, organization charts, job descriptions for biosolids personnel, checklists, operating logs, annual reports, monitoring records, and other EMS documents/records you have that are related to biosolids management activities and your current management systems. In addition, a written summary of your overall biosolids management program, and available biosolids-related informational brochures, fact sheets, etc., should be gathered for review.

## 4 Prepare for EMS implementation planning visit interview

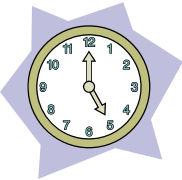
Each staff member should come prepared to talk about his or her specific biosolids management activities. Participants should be prepared to provide a good summary of roles and responsibilities for the individuals in your agency or in your contractor organizations who are responsible for specific biosolids management activities (e.g., industrial pretreatment, wastewater treatment, biosolids stabilization and conditioning, biosolids monitoring/measurement, biosolids storage, biosolids transportation, biosolids use/disposal).

## 5 Finalize the EMS implementation planning visit agenda/itinerary

Your assistance is needed to arrange for a plant tour, if applicable, and provide a projector, assemble your team, and line up meeting space for the two-day visit. Circulate the proposed agenda to relevant staff ahead of time and confirm availability of implementation team members and top management to attend the meetings indicated in the draft schedule. If necessary, discuss changes in the schedule with your account executive to accommodate people's schedules.

## 6 Participate in the planning visit and review summary documents

Here, your agency actively participates in the interview and in finalizing the results of your implementation plan.



## Applying the Results

The results of the EMS implementation planning visit have two important purposes.

**1** As a member agency, you and your EMS team will use the EMS implementation planning visit results to develop your EMS implementation plan. Your account executive will be your primary point of contact with the NBP throughout the EMS implementation process.

**2** The EMS implementation plan (provided in an Excel spreadsheet) will be helpful for quarterly status reporting to the NBP, your team, and your account executive. This tool will help you track your EMS development and implementation progress.

## Work Products from Implementation Planning Visit

At the end of your implementation planning visit, your account executive will leave you with the documents listed below.

- **Program Baseline Summary.** This document summarizes the results of discussions with your account executive about challenges your organization faces, and opportunities for improvement. This baseline serves as a set of “guide posts” for your EMS throughout the development process.
- **Implementation Plan Schedule/Next Steps.** This document, in the form of an excel spreadsheet outlines a series of steps and target dates for implementing your EMS. This plan should be updated and followed as you go through the process.
- **Critical Control Points Table.** Your account executive will leave you with a draft list of critical control points, these are the activities and processes that you need to manage effectively to improve in the four outcome areas.

# EMS Implementation Planning Visit Questionnaire

---

The questions below serve as guidance for discussing challenges your organization faces and opportunities for improvement. Your account executive will use these questions to guide discussions during the visit. *They are included here as background. You can distribute them to your team but is not necessary to complete answers beforehand.*

## Background/Issues/Threats/Weaknesses

1. Why is your organization participating in the NBP program?
2. What are the key issues or threats that face your program?
3. How would you rate your overall public acceptance on a scale of 1-10? Explain.
4. What biosolids management challenges or issues seem to require the most amount of your time?
5. What key benefits would you like to see come out of your organization's effort to implement an EMS?
6. What are the main areas you would like to see it focus on?

## Operations/Biosolids Management

7. Describe your biosolids quality and characteristics. What key unit processes and activities affect these qualities?
8. How does your organization ensure consistent biosolids product quality from cradle to grave?
9. Have there been any instances where the fact that procedures didn't exist or weren't followed properly resulted in a significant problem or incident?

10. Are there any specific areas where you don't have SOPs where they may be needed?
11. What types of training activities do you use to ensure relevant staff are competent in performing day-to-day tasks?
12. How are on-site problems (e.g., at your facilities) or process upsets reported and dealt with?
13. What activities are contractors responsible for?
14. Have there been any instances where contractor operations have caused a problem for you?
15. How are off-site problems (e.g., at land application sites) reported to you and dealt with? Do you find out in a timely manner when problems occur?
16. How much control are you able to exert on your contractor activities/operations through existing contracts or service agreements?

## Compliance/Regulatory

17. How are you doing on regulatory compliance? Have you had any specific instances recently that lead to non-compliance? What caused these incidents?
18. Describe your key activities and who is responsible for:
  - Identifying and tracking legal requirements
  - Communicating them to management and staff
  - Responding to changes in regulatory requirements that affect operations, activities, and procedures
19. Do you have any non-regulatory commitments, agreements or requirements that apply to biosolids management activities?

20. What happens when you have a compliance problem? Who is involved in figuring out what went wrong and correcting/addressing it so it doesn't happen again?

## Public Involvement/Outreach / Communication

21. Have there been any recent incidents that caused a public relations problem?

22. Who are some of your key interested parties?

23. What are their main issues and concerns?

24. What processes do you use to engage interested parties?

25. How can interested parties let you know if they have a comment or complaint? How are these handled and responded to after you receive them?

26. How many complaints do you receive? What are they about?

27. What biosolids-related materials and information do you make available to the public?

28. Who is responsible for these activities?

29. How does your contractor handle and respond to complaints? Do they forward this information to you?

30. How do you communicate information internally related to biosolids management activities?

## Environmental Performance

31. Do you go beyond regulatory requirements? If so, how?

32. In general, how would rate the level of "environmental awareness" of management and staff?

33. Describe any specific environmental impacts or issues that are important in surrounding community?
34. What is the level of environmental awareness of the surrounding communities?

## **Documents/Records/Information Management**

35. How does your organization manage and control documents? That is, how do you ensure that people have easy access to the documents they need, and that they access the correct, approved version?
36. How do you manage work orders and tasks related to biosolids management?
37. How secure/robust are these systems? If something went wrong (e.g., virus, computer meltdown), will people still be able to get the information and documents that they need?
38. How do you manage SOPs, approved procedures, and plans?
39. How do you manage documents and recordkeeping related to compliance?
40. How do you manage information and documents flowing between you and your contractor(s)?
41. Have you had any problems related to documentation, recordkeeping and information management that you feel could be prevented or improved?

## **Mission/Vision/Policy/Strategic Planning**

42. Do you have a mission and vision statement?
43. Do you have any policy statements that are relevant to biosolids management?
44. Describe your overall strategic planning process

45. Describe your annual planning process for biosolids
46. Do you set performance-related/ measurable goals for biosolids? If so, what are they and how are you performing against those goals?

## General EMS Questions

47. Have you identified a management representative who has overall responsibility for the success of the EMS?
48. Have you identified an EMS coordinator who has been tasked with developing and implementing the EMS?
49. Have you formed an EMS team that represents all departments that play a role in biosolids management activities or have some supporting role to play in developing the EMS?
50. Have sufficient resources and time been allocated to allow the EMS coordinator and EMS team members to devote sufficient attention to developing the EMS and implementing it after it has been developed?

# Additional Resources

---

The NBP has developed a set of resources to help interested agencies implement an EMS. These can be found on the NBP's website, [www.biosolids.org](http://www.biosolids.org), and include the following:

- *The Code of Good Practice*: Ten principles to which agencies commit that set forth a number of broad goals that govern the operation of sustainable biosolids management programs.
- *The Elements of an Environmental Management System for Biosolids (EMS Elements)* – A set of common management practices for use by facilities implementing an EMS. These elements are the standards or benchmarks by which your EMS should be developed and by which your program will be evaluated.
- *The National Manual of Good Practice* (technical guidance on benchmark management practices) –A summary guidance manual that describes the full range of biosolids treatment and appropriate management practices routinely used.
- *The Environmental Management System Guidance Manual* (guidance for agencies on how to develop an EMS) –A detailed manual with useful step-by-step guidance on how to implement the EMS elements.
- *The Independent Third-Party Verification Program and Third-Party Verification Auditor Guidance* – A guidance manual for third-party auditors that ensures the EMSs of participating organizations are evaluated in a fair and consistent manner corresponding with the expectations of the NBP.

**Code of  
Good Practice**

**Biosolids  
EMS Elements**

**National Manual  
of Good Practice**

**EMS Guidance  
Manual**

**Third Party  
Auditor Guidance**

# EMS Glossary

---

***Biosolids Management Activities*** – A wide range of activities that impact the quality of wastewater solids and biosolids, including pretreatment activities, wastewater treatment processes, solids stabilization processes, conditioning and dewatering processes, transportation, storage, and beneficial use or disposal.

***Biosolids Management Policy*** – Statement by an organization committing it to the principles set forth in the NBP *Code of Good Practice* with respect to biosolids management and any other overall environmental goals voluntarily adopted by the organization.

***Biosolids Program Goal(s)***– Environmental performance improvement goals that are consistent with an organization’s biosolids management policy to ensure biosolids activities comply with applicable laws and regulations, meet quality and public acceptance requirements, and prevent other unregulated adverse environmental and public health impacts by effectively managing all critical control points. Biosolids program goals may include but are not limited to compliance with specific regulatory requirements, expanding beneficial use, improving biosolids quality, improving public acceptance, and reducing or eliminating direct/indirect negative environmental impacts.

***Biosolids Program Objective(s)*** – A detailed environmental performance improvement requirement, quantified wherever possible, based on a biosolids program goal. One or more objectives usually must be met for the underlying goal to be achieved.

***Biosolids Public Acceptance Requirements*** – Biosolids physical, chemical, biological, and aesthetic characteristics and management methods that must be met consistently and reliably to achieve public acceptance of the organization’s selected biosolids management method(s).

***Biosolids Quality Requirements*** – Biosolids physical, chemical, biological, and aesthetic characteristics that must be met consistently and reliably to apply the organization’s selected biosolids management method(s).

***Biosolids Value Chain*** – Sequence of activities from wastewater pretreatment, discharge, and collection through wastewater treatment, solids treatment, and handling, storage, transportation, and disposal or beneficial use of biosolids that impact the quality and stability of biosolids and their suitability for the selected management method.

***Continual Improvement*** – EMS process for systematically improving the overall management of biosolids to achieve the organization’s biosolids program goals and objectives set forth in the organization’s biosolids management policy and the National Biosolids Partnership *Code of Good Practice*.

***Corrective Actions*** – Specific actions and steps taken to correct an organization’s nonconformance(s) to policies, procedures, and other legal, quality, and public-acceptance requirements, and to mitigate any resulting negative impacts on the environment.

***Critical Control Points*** – Those locations, unit processes, events, and activities throughout the biosolids value chain under the organization’s direct control or influence that require effective policies, programs, procedures, practices, monitoring, and measurements to ensure

the biosolids activities meet legal, quality, and public acceptance requirements and do not have undesirable environmental impacts. Critical control points include all biosolids management activities that are covered under applicable legal and other requirements.

**EMS Audit (Internal)** – A systematic internal audit process for objectively evaluating whether an organization’s environmental management system for biosolids conforms with the requirements of the NBP *Code of Good Practice*, the organization’s biosolids policy, and the 17 EMS Elements.

**EMS Audit (Third-Party Verification)** – A systematic, structured audit of the organization’s biosolids EMS performed by a qualified independent third-party auditor using a standardized protocol to verify conformance with the requirements of the *Code of Good Practice*, the organization’s biosolids policy, and the 17 EMS Elements.

**EMS Documents** – Various documents that collectively compose the biosolids environmental management system documentation, including the biosolids management policy, procedures, practices, operating instructions, and other supporting documents required by the environmental management system and applicable biosolids laws and regulations.

**EMS Records** – Various records or reports of biosolids management activities required by the environmental management system and applicable biosolids laws and regulations, including but not limited to records or reports of monitoring, measurement, laboratory testing, inspections, operating logs, emergency response incidents, outside party inquiries, public participation meetings, audits, corrective actions, management reviews, and periodic performance reports. Records describe the results of specific biosolids management activities for a prescribed event, activity, or period of time.

**Environmental Impacts** – Any change to the environment (positive or negative), including public health, public nuisances, and odor problems, that wholly or partially result directly or indirectly from the organization’s activities, products, or services, including those activities associated with biosolids management, and those activities that alter (positively or negatively) the acceptable disposal or use method or create public nuisance and public health risks.

**Environmental Management System for Biosolids (EMS)** – An organized management system that meets the requirements of the EMS elements for achieving the biosolids management policy requirements and for developing, implementing, reviewing, and maintaining effective biosolids management programs, procedures, and practices. The EMS needs to manage all critical control points associated with biosolids activities where there is a potential to create significant negative environmental impacts.

**Interested Parties** – Individuals, groups, or other public or private organizations interested in, involved with, or otherwise affected by the organization’s biosolids management activities, including customers, farmers, regulators, and other local or state governmental officials, community residents, the media, environmental and public interest groups, university professors, and the general public.

**Nonconformance** – A deviation in organization’s established biosolids management policy and environmental management system from the NBP *Code of Good Practice* principles and/or the requirements of the EMS elements. Nonconformance examples include

circumstances that have the potential to create a noncompliance situation or significant environmental impacts.

***Operational Controls*** – Ordinances, regulations, standard operating procedures, practices, technology, instrumentation, and process controls, monitoring and other criteria developed, implemented, and maintained by an organization to ensure effective management of all critical control points associated with its biosolids management activities; including conformance with biosolids management policy requirements and achievement of biosolids program goals and objectives.

***Other Requirements*** – Other binding biosolids management practices and environmental requirements to which an organization voluntarily subscribes as part of its environmental management system. Examples include binding agreements with customers, suppliers, and public organizations and commitments to “beyond-compliance” performance.

***Public Participation*** – Specific approach(es) and action(s) taken by an organization to involve interested parties and the general public in its biosolids management program, including establishing improvement goals and objectives.

***Service Agreement(s)*** – Contractual or other legally binding agreements that define the roles and responsibilities of contractors and other groups in supporting the organization’s EMS for biosolids.