National Biosolids Partnership
Environmental Management System Program

Third Party Verification Auditor Guidance

November 2002

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National Biosolids Partnership Auditor Guidance Table of Contents

CHAPTER 1: Introduction to NBP EMS Third Party Verification Program

1.1 Purpose of this Guidance

To improve the implementation and public acceptance of environmentally sound biosolids management practices, the National Biosolids Partnership (NBP) has developed a voluntary environmental management system (EMS) verification program for the biosolids industry. A key component of this initiative is the creation of an independent, third party EMS verification program to validate and verify that the EMS's of participating biosolids organizations satisfy the EMS expectations and requirements established by the NBP. The goal of this Guidance - the NBP EMS Auditor Guidance - is to ensure that the requirements and processes of the NBP EMS Third Party Verification are clearly established and communicated, and to ensure that the EMS's of participating organizations are evaluated in a fair and consistent manner that corresponds with the expectations of the NBP. To this end, this Guidance summarizes the NBP EMS Third Party Verification approach and addresses the following objectives:

- Introduces EMS auditors to the National Biosolids Partnership, the NBP EMS Program, and the NBP Third Party Verification.
- Communicates the requirements for achieving NBP EMS Program Verification, including the specific requirements associated with the 17 elements of the NBP's *Elements of an Environmental Management System for Biosolids (EMS Elements)*.
- Outlines processes and procedures associated with the NBP EMS Third Party Verification.
- Presents the qualifications and requirements that NBP EMS auditors must meet.

While the primary audience for this Guidance is NBP EMS auditors, this Guidance should also be useful for other audiences interested in the NBP's National Biosolids EMS Program, including organizations seeking NBP verification of their environmental management systems. However, organization's seeking NBP verification of the EMS do not need to read the Auditor Guidance to understand the requirements and expectations for receiving EMS verification. These expectations are clearly provided in the other NBP Blueprint documents (see section 1.3).

1.2 The National Biosolids Partnership

The 1993 U.S. Environmental Protection Agency's Part 503 regulations established federal biosolids management standards with respect to public health and the environment. This regulation has facilitated the expansion of biosolids recycling practices throughout the U.S. Biosolids contain nutrients that can be beneficially used in a wide range of agricultural, forestry, and horticultural applications. Public and regulatory community concerns over effective management of biosolids programs, however, pose formidable challenges to comprehensive beneficial utilization of biosolids.

In 1997, the Association of Metropolitan Sewerage Agencies (AMSA), 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. The NBP's EMS Program is designed to be practice-neutral, and includes land filling and incineration practices, as well as beneficial reuse. Biosolids producers, service contractors, and users -

together with stakeholders from regulatory agencies, universities, the farming community, and environmental organizations - all have input into shaping the NBP priorities.

1.3 The NBP EMS Program

The NBP has sponsored several initiatives designed to promote responsible biosolids management within the industry with the goal of enhancing the environmental performance and public perception of biosolids programs. The cornerstone of these initiatives has been the development and implementation of the NBP's National Environmental Management System (EMS) Program. The NBP strongly believes that biosolids management organizations will benefit from adopting an EMS as part of their overall management programs. The potential benefits of adopting an EMS are numerous, including improved regulatory compliance, enhanced environmental performance, increased efficiency, reduced cost, pollution prevention, improved consistency and quality of biosolids materials, and improved relations with local communities. The NBP hopes that its EMS approach will be adopted throughout the biosolids industry, by wastewater treatment utilities, their contractors, and other stakeholders involved in biosolids production and final use and disposal.

The NBP goals for developing an EMS program are the following.

- To promote environmentally sound and publicly accepted biosolids management practices.
- To help program participants demonstrate to their communities that they are committed to go beyond meeting regulatory requirements and to explain how they are working to improve their environmental performance.
- To help program participants involve their communities in defining improved performance or areas that still require attention.

The initiative provides a blueprint that each organization can use to implement its own EMS. At the heart of the NBP's EMS Program is the *Code of Good Practice* that sets forth the important principles and goals that govern the operation of environmentally sustainable biosolids management programs. These principles and goals have been translated down to the operational level through the development of the *EMS Elements.* The *EMS Elements* define the specific expectations and requirements, grouped into 17 "elements," that the NBP believes to be important for ensuring that biosolids management activities are performed in an environmentally sound and publicly accepted manner. The *EMS Elements* define the specific expectations and requirements that an auditor will use to verify that an organization's environmental management system meets the NBP's EMS Program requirements.

Individual biosolids organizations adopting the NBP EMS have the flexibility to determine how they will satisfy the biosolids EMS requirements that are applicable to their operations. The NBP acknowledges the need for substantial local tailoring of EMS planning and implementation activities, including the establishment of goals and objectives designed to support environmental improvement and the commitment to seek continual improvement. In no instance does the NBP intend to suggest that an organization should share decision-making authority outside its traditional chain of command as a basis for program participation. Also, it is not the intent of the NBP that the development or implementation of an EMS be a substitute for regulatory oversight or that the EMS requirements be included as a regulatory requirement in NPDES permits. The EMS, however, can and should be used by organizations as a means to meet their commitment to compliance with all applicable biosolids-related regulatory requirements.

Table 1.0: NBP EMS Blueprint Resources

Code of Good Practice	sets forth a number of broad principles that govern the operation of sustainable biosolids management programs.
National Manual of Good Practice	describes the full range of practices available to any facility wishing to implement an EMS for biosolids. The menu approach of the Manual encourages voluntary participation by allowing agencies to assemble the mixture of practices and procedures that are most appropriate for their individual agency. The Manual is available from the NBP and is intended to be used as a reference and guide on developing and implementing an EMS.
Elements of an EMS for Biosolids (EMS Elements)	for use by facilities in implementing an EMS. These Elements lay out the requirements by which an auditor will evaluate an EMS.
Biosolids EMS Guidance Manual	guides development and implementation of a conforming biosolids EMS program. It provides information on the NBP's program, its benefits, and a suggested approach, along with specific instructions about what an organization will need to do to achieve success.

1.4 NBP EMS Program and Third Party Verification

To support the goal of environmentally sound and publicly accepted biosolids management practices, the NBP has developed an independent, third party EMS verification component of its EMS Program. Organizations interested in receiving formal recognition of their EMS and of their participation in the NBP's biosolids EMS program must achieve verification of their EMS through the NBP's third party verification program. The third party verification program objectives are the following.

- Ensure that the environmental management systems of participating biosolids organizations meet the expectations and requirements established by the NBP.
- Verify that EMS activities at participating organizations are being implemented in practice, as well as on paper.
- Assure environmentally sound performance of biosolids management practices.
- Increase public trust and confidence in biosolids management practices.

The NBP's EMS program provides recognition in the form of a "seal of approval" for the organization's biosolids environmental management system. NBP EMS Program recognition does not serve as a seal of product quality assurance, as direct product quality testing is not part of the EMS verification audit. Those organizations that receive verification are granted permission to use the NBP EMS seal on buildings, equipment, signs, or other items as deemed appropriate (except for biosolids materials).

For those biosolids organizations that successfully complete a third party verification audit, the NBP's EMS program provides recognition in the form of a "visual indicator"(seal or label yet to be designed) and designation statement for the organization's biosolids environmental management system. EMS verification will help program participants to communicate to interested parties about their EMS and participation in the NBP's EMS Program. *(See section 5.2 in this Auditor Guidance for details about the NBP "visual indicator" and accompanying designation statements.)*

The relationship between the NBP, the audit organization, the EMS Program Advisory and Appeals Board, and the participating organization shall be the following:

- The biosolids organization requesting a third party EMS audit will pay a program fee to the NBP, which will cover the third party verification audit and interim audits.
- The NBP will approve the third party verification auditor(s) and/or audit organization(s) who conduct the verification audits. Third party audit organization will receive payment from the NBP, not from the biosolids organizations being audited.
- Auditors are required to meet specific training and certification requirements (see Chapter 2). Auditors (or their organizations) will pay for their own training and certifications.
- The EMS Appeals Board will provide general program oversight and advice to the NBP. *(See section 5.3 for more information on the makeup and role of the Board.)*
- Organizations who wish to appeal their third party verification audit results can present an appeal to the EMS Appeals Board. *(See section 5.3 for more information on the verification appeals process.)*

1.4.1 NBP Program Eligibility Requirements

Any public or privately operated wastewater treatment facility in the United States with a biosolids program and responsibility, either directly or indirectly, for the full biosolids value chain is invited to participate in the NBP's voluntary EMS Program and seek verification through the third party verification program.

To be eligible to apply for NBP EMS Program verification, an organization must meet the following criteria:

- Be responsible (directly or indirectly) for the full biosolids value chain (pre-treatment and collection, treatment and stabilization, storage and transportation, and final use or disposal);
- Have committed in writing to follow the NBP *Code of Good Practice* through a letter of understanding with the NBP, signed by the organization;
- Have an NBP EMS in place and operating for at least six months; and
- Have conducted at least one internal EMS audit.

1.4.2 EMS Verification Requirements

To receive verification for its EMS and become a participant in the NBP EMS Program, a biosolids organization must complete successfully an on-site EMS verification audit performed by an independent, third party auditor (or audit team) sanctioned by the NBP.

Once an organization achieves initial verification and becomes an NBP EMS Program participant, it must complete annual, interim audits successfully to demonstrate the continued health and performance of the EMS and to maintain NBP Program participant status. NBP EMS verification is good for five years from the date of the audit organization's issuance of a verification decision, at which point a biosolids organization can be re-verified

provided that it continues to satisfy the above-mentioned requirements. *(See Chapter 5 of this Guidance for additional information on the interim and re-verification audits, as well as maintenance of verification status.)*

1.4.3 Verification Audit Scope & Approach

Consistent with the NBP *EMS Elements*, the EMS audit scope encompasses the entire biosolids value chain (pretreatment and collection through final use or disposal). The auditor should remember, however, that as an EMS for biosolids, attention should be focused on those practices and management activities that directly support biosolids-related operations, processes, and activities, as opposed to all wastewater treatment utility activities.

The NBP third party verification audit process is comprised of two major components. First, the designated auditor conducts a "desk audit" of the participating organization's application and supporting EMS documentation. During this review, the NBP anticipates that the auditor will be able to verify that the biosolids organization has satisfied the basic EMS program documentation requirements.

Second, the auditor will conduct an on-site EMS verification audit. The on-site portion of the audit should emphasize examination of the effectiveness of the organization's biosolids management systems, as implemented, at delivering the organization's intended outcomes - which should be documented in the EMS Manual, environmental policy, and/or goals and objectives - on a consistent basis.

To make the verification determination, auditors will evaluate the adequacy of a organization's EMS with respect to the NBP expectations and requirements established through the *EMS Elements*. At the same time, however, the NBP directs auditors to defer substantially to the expertise and knowledge of local conditions that program participants have and the decisions they then make regarding practice selection, environmental performance improvements, and public participation methods. The NBP's EMS Program has been specifically designed to provide substantial latitude for individual biosolids organizations to determine *how* to address the NBP expectations and requirements.

1.5 Structure of the Auditor Guidance

This section introduces the reader to the contents of the remainder of this Auditor Guidance.

Chapter 2 addresses the qualifications and requirements for individuals who wish to participate as auditors in the NBP Third Party EMS Verification Program. This Chapter presents the minimum auditor qualifications, the process for becoming an accredited NBP EMS auditor, and basic scope of the NBP auditor training program.

Chapter 3 focuses on pre-audit activities - what the auditor will do before visiting the facility - including the EMS "paperwork review" ("desk audit"), and other pre-audit activities.

Chapter 4 focuses on the on-site verification audit, providing a guide to the format and scope of the on-site portion of the third party verification audit. This chapter addresses important logistical information, including special considerations related to the on-site audit process, such as public participation, contractor involvement, and final use and disposal operations.

Chapter 5 discusses post-audit activities such as audit reporting, corrective actions and verification approval, maintenance of verification status, verification appeals process and board, interim audits, and re-verification audits.

Chapter 6 covers the Policy Elements (Element 1 - Documentation of EMS for Biosolids; Element 2 - Biosolids Management Policy).

Chapter 7 covers the Planning Elements (Element 3 - Critical Control Points; Element 4 - Legal and Other Requirements; Element 5 - Goals and Objectives for Continual Improvement; Element 6 - Public Participation Planning).

Chapter 8 covers the Implementation Elements (Element 7 - Roles and Responsibility; Element 8 - Training; Element 9 - Communications; Element 10 - Operational Control of Critical Control Points; Element 11 - Emergency Preparedness and Response; Element 12 - Documentation, Document Control and Recordkeeping).

Chapter 9 covers the Measurement and Corrective Action Elements (Element 13 - Monitoring and Measurement; Element 14 - Nonconformances: Preventive and Corrective Action; Element 15 - Biosolids Management Program Performance Report; Element 16 - Internal EMS Audit).

Chapter 10 covers the Management Review Element (Element 17 - Periodic Management Review of Performance).

Chapter 11 provides examples of potential EMS nonconformances.

A **Glossary** of definitions is provided at the end.

CHAPTER 2: Third Party EMS Auditors - Qualifications & Requirements

To ensure that the third party verification component of the NBP's EMS Program sustains public confidence and acceptance and provides program participants assurance that their EMS will be consistently and fairly evaluated, clear guidelines are necessary regarding auditor qualifications and requirements. The establishment of minimum qualifications and requirements serves to:

- Prevent potential conflicts of interest that may color auditors' findings and recommendations or interested party perceptions of audit result legitimacy;
- Ensure that auditors have sufficient familiarity and experience with wastewater treatment and biosolids management operations, practices, and regulations to evaluate organizations' EMS programs effectively;
- Ensure that auditors have sufficient expertise related to management systems auditing; and
- Ensure that auditors have sufficient training on and understanding of the specific goals, elements, and requirements associated with the NBP's EMS Blueprint.

This chapter reviews the minimum requirements that NBP-certified auditors must meet and summarizes the auditor certification, training, oversight, and evaluation processes.

2.1 Auditor Qualifications

All independent, third party auditors who provide verification audits for the NBP EMS Program must be certified by the NBP. To receive certification, all auditors (individuals) must have the following minimum qualifications:

- Have not provided consulting services to any organization they audit in the two years prior to an audit and for two years after, in order to prevent a conflict of interest.
- Have a minimum of 5 years experience in wastewater treatment and biosolids program management (if the audit is conducted by a team, at least one auditor must have a minimum of 5 years experience in wastewater treatment and biosolids program management).
- Be an ANSI-RAB certified ISO 14001 Lead EMS Auditor (if the audit is conducted by a team, at least one auditor must be a certified Lead EMS Auditor) or an NBP approved equivalent verification for lead EMS auditor.
- Be knowledgeable of applicable federal biosolids regulations, as well as the NBP's *National Manual of Good Practice, Code of Good Practice, EMS Elements, EMS Guidance Manual,* and *Auditor Guidance*.
- At the time of the audit, be familiar with applicable state/local requirements and practices.

The NBP believes that the above combination of skills and experience will provide auditors who are competent in systems auditing, as well as familiar with wastewater and biosolids program management. These skills, and the requirements regarding conflicts of interest, will also provide for auditors that are seen as credible by biosolids management program interested parties.

The NBP recognizes that it is not feasible for all auditors to be knowledgeable of biosolids regulations in all 50 states and numerous localities. To ensure that auditors are familiar with state and local requirements, the NBP's intent, where feasible, is that participating wastewater treatment organizations will have audits conducted by auditors located within their region.

2.2 Auditor Certification

To be certified by the NBP to perform third party EMS audits, all auditors must meet the minimum qualifications described above, must attend the NBP auditor training described in section 2.3, and must pass a written exam given as part of the training.

2.3 Auditor Training

The NBP has developed an auditor training course that focuses on the NBP EMS Blueprint documents and unique aspects of the NBP EMS Program. The training includes classroom and on-site exercises and concludes with a written exam. To successfully complete the auditor training and become certified by the NBP, all auditors must pass the written exam and clearly demonstrate an understanding of the NBP EMS Program.

2.4 Auditor Oversight and Evaluation

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Section 2.4 is a placeholder. The NBP's 2001 EMS Program Advisory Group and Auditor Guidance Development Group recommended that the NBP program include a process for reviewing auditor performance and, if necessary, for removing auditors. Additionally, the Groups recommended that the NBP certification requirements include ongoing requirements such as completing a certain number of audits per year and/or periodic refresher training courses.

CHAPTER 3: Pre-Audit Activities

This chapter addresses the various activities of the NBP Third Party EMS Verification that occur prior to the on-site verification audit, including the application process and EMS paperwork review. These activities are designed to ensure that an organization's EMS is ready for third party verification in the form of an on-site audit.

3.1 NBP Verification Application Process

Once a biosolids organization has implemented an EMS - and it has had at least six months of experience operating under the EMS - the organization can apply to have its EMS verified by a third party auditor for conformance with the NBP EMS Program requirements. To apply for verification, a biosolids organization must submit the following materials to the National Biosolids Partnership:

- A completed EMS Verification Application form, which includes a description of the organization's intended use or disposal of biosolids material, the desired biosolids material characteristics, the wastewater facility operations associated with biosolids production, and a characterization of contractor use and final use and disposal operations;
- A signed letter of understanding between the participating agency and the NBP that includes a clear statement of the date at which the organization achieved full implementation of its EMS (defined as the date when management officially approved the EMS Manual);
- A copy of the organization's Biosolids Management Policy that includes a commitment to following the principles of conduct set forth in the *Code of Good Practice*;
- A copy of the organization's most recent internal EMS audit report; and
- Supporting documentation - in the form of an EMS Manual or collection of relevant documents - that demonstrates that the organization's EMS addresses all of the NBP's 17 *EMS Elements.*

Supporting documentation shall include a list or description of actual operational controls, standard operating procedures, and operating records, sufficient to allow the auditor to gain a thorough understanding of the facility and its operations prior to the on-site visit. The supporting documentation should be comprehensive enough to demonstrate that the organization has established policies, programs, procedures, and/or systems to address all 17 NBP *EMS Elements* and their associated requirements. The NBP anticipates that most organizations will submit a manual that describes the organization's EMS and that references additional specific documents (e.g., Emergency Response Plan, operating procedures) but does not include them. Documentation of the organization's critical control points in an EMS Manual will help the auditor understand the type of utility operations, including final use or disposal, and determine whether the identified critical control points are consistent with the NBP reference Manuals, and what the scope of the audit should be. The NBP shall review the EMS Application to confirm that the organization meets the program eligibility requirements identified in Chapter 1 of the Auditor Guidance. As well, the NBP shall review the EMS Application to ensure that it has been filled out completely, and that all required documents have been submitted. If the application indicates that the organization does not meet the program eligibility criteria, the NBP will contact the organization with that information. Organizations are eligible to reapply for NBP EMS verification in the future. If all of the required documentation is not included in the application package, the NBP will contact the organization to request the missing information. This would include

confirming that supporting documentation is included in the application, but would not include a review of the supporting documentation to verify it fulfills all of the *EMS Elements* requirements. The third party auditors do that review. Once the NBP has confirmed that the organization meets the program eligibility criteria and that the required documentation is included, the NBP shall forward the application and supporting materials to the selected audit firm.

3.2 EMS Documentation Review

Upon receipt of the EMS Verification Application and documentation, the NBP audit contractor shall assign a lead auditor to review the documentation and compare it to the requirements presented in the *EMS Elements.* This EMS document review (or "desk audit") shall be completed, preferably within 30 days, and at a maximum within 60 days, of the NBP's receipt of the application. The document review serves the following purposes:

- Verifies that the biosolids organization's EMS conforms to the basic requirements for NBP EMS verification, as defined in the *EMS Elements*;
- Confirms that the organization's biosolids management system and stated goals and objectives are aligned with the *Code of Good Practice* and NBP program objectives;
- Confirms whether or not the critical control points, operational controls, and management practices identified in the EMS materials are consistent with those in the *National Manual of Good Practice;*
- Allows the auditor to assess the amount of time that is likely to be needed for the on-site audit, based on the size and complexity of the facility (or facilities) and number of final use and disposal operations; and
- Enables the auditor to determine the range of technical expertise that may be necessary to evaluate effectively the biosolids organization, based on the types of processes and practices utilized by the biosolids organization.

If there is insufficient EMS documentation to make a determination about whether the EMS conforms to the requirements of the *EMS Elements* (i.e., if required documents are missing or documents do not address all the specified topics) the lead auditor shall contact the representative of the organization to ascertain whether other paperwork exists that has not been supplied. If there is sufficient documentation, but the documents indicate that the EMS may not conform to the requirements of the *EMS Elements*, the lead auditor shall inform the organization that there are deficiencies indicated in the documentation that need to be addressed before a site visit for verification is appropriate. The lead auditor will also inform the NBP of the situation.

3.2.2 Addressing EMS Documentation Nonconformances

During the review of an organization's EMS documentation, the lead auditor may find an indication that the organization's EMS does not conform to the NBP's requirements, as defined in the *EMS Elements.* The auditor shall assess whether these constitute potential minor or major nonconformances. The definitions of minor and major nonconformances are provided below.

- **A minor nonconformance** is one that, when taken by itself, does not indicate a systemic problem with the EMS. It is typically a random or isolated incident. Minor nonconformances involve discrepancies within an element of the *EMS Elements* or the organization's environmental management system that do not significantly affect the implementation of the environmental management system and commitment to conform with the *Code of Good Practice* – a systemic problem is not indicated.

- **A major nonconformance** occurs when one or more of the elements in the *EMS Elements* has not been addressed or has not been addressed adequately. Major nonconformances can occur when an organization has documented a process or procedure, but has not implemented it or cannot demonstrate effective implementation. A major nonconformance can also occur if a number of minor nonconformances in a given activity or against a given element point to a systemic failure. Major nonconformances also exist if an element is being disregarded sufficiently during organizational operations that it is having a noticeable effect on the organization's regulatory compliance, environmental impacts, or the quality of the biosolids material being produced – there is a gap or problem that could lead to a systemic failure.

The NBP EMS Program does not require that an EMS be perfect, but instead requires a commitment to continual improvement. In this light, the NBP assumes that minor nonconformances may occur and should not prevent an organization from being verified into the NBP's EMS Program. Major nonconformances that indicate systemic failure, however, must be corrected to achieve or maintain NBP EMS program verification.

The auditor shall contact the applicant organization's EMS representative (identified clearly on the EMS Verification Application form) to discuss any identified nonconformances. This contact provides the applicant with an opportunity to understand the nature and significance of the nonconformances. In some cases, the applicant may be able to provide additional documentation to the auditor that demonstrates that the potential nonconformance does not exist.

If there are EMS nonconformances identified by the auditor in the EMS paperwork that appear minor, the lead auditor shall move forward with scheduling the on-site visit. If the nonconformances in the paperwork are major, the auditor addressing the additional work required before a verification audit is warranted shall return the paperwork to the organization with a written recommendation. This recommendation must include a description of the major nonconformance(s) identified. The auditor shall provide notification of this recommendation to the NBP.

3.3 Pre-Audit Status

A "pre-audit status" is what organizations can say about their relationship to the NBP's EMS Program prior to completing the initial, verification audit successfully.

The NBP recognizes that a formal pre-audit status could make the NBP's EMS Program more attractive to potential participants in that they could potentially benefit from affiliation with the NBP's EMS program before having completed a lengthy (often involving a year or more) and resource-intensive process of planning, implementing, and having verified a biosolids EMS. However, the NBP also believes that a formal pre-audit status could potentially blur the value of NBP EMS Program participation and associated designation (verification statement and visual indicator), earned upon successful completion of the third party verification audit. As such, the NBP does <u>not</u> provide a formal pre-audit status for potential program participants.

Instead, the NBP allows the option for a representative of potential program participants to sign a "letter of commitment," indicating their commitment to: implement an EMS for biosolids in conformance with the EMS Elements; complete a third party verification audit; uphold the 10 principles in the *Code of Good Practice*; and meet all program eligibility criteria.

To retain the value of successfully completing the EMS audit, the NBP strictly prohibits the use of the designation statement and visual indicator of program participation by organizations who have committed to the *Code of Good Practice* but have not yet completed the initial, third party verification audit successfully, and therefore, are not NBP EMS Program participants. *(See section 5.2 for more information on the NBP program designation statement and visual indicator.)*

The NBP recognizes that organizations will need and want to inform interested parties, including their own governing bodies, neighbors, and rate payers, that they are engaged in the process of developing an EMS. In fact, the EMS Elements require that organizations involve the public in EMS planning. However, the NBP strictly prohibits such organizations from promoting themselves as "participants of" or "participating in" the NBP's EMS Program or as having an EMS that has been "verified" by the NBP. The NBP believes it is important to provide clarity about any potential program participants who have made a commitment, as different from the program participant status of organizations that have completed successfully a third party audit.

The NBP website will list the organizations that have signed a letter of commitment with the following statement:

> "These organizations have pledged to implement an environmental management system (EMS) for biosolids in conformance with the National Biosolids Partnership's EMS Program requirements and to complete, in the future, an independent third party EMS verification audit."

Organizations who have made a declaration of commitment, and whose commitment status is advertised on the NBP website, are required to apply for a third party verification audit within 24 months of signing the letter of commitment. Failure to apply for a verification audit within that time period, or to request an extension from the NBP Management Committee, would result in being de-listed from the NBP website. The time limit is important to ensure that organizations are not using the NBP Program's name without making a genuine effort to implement an EMS for biosolids.

The NBP does not provide a formal, pre-audit signal or formal review step prior to the third party verification audit. If the NBP were to provide a formal approval of an organization's EMS before it is complete, the third party auditors might not be able to give a truly independent evaluation of the EMS during the audit. As well, a formal preapproval by the NBP could reduce program credibility with interested parties who might question the independence of the third party verification program.

Instead, the NBP may provide an optional peer mentor program that supports informal, technical assistance for potential program participants. As well, the NBP provides the organizations with EMS Program blueprint documents (e.g., *Code of Good Practice, Manual of Good Practice, EMS Elements, Biosolids EMS Guidance Manual and Auditor Guidance*) to ensure that program requirements are clearly available to all potential program participants. Finally, the NBP acknowledges that, as is common in other voluntary environmental improvement programs, organizations may undertake, at their own expense, a readiness assessment prior to engaging in a verification audit.

As of the adoption of this Auditor Guidance in November 2001, there were 40 demonstration agencies that had already signed a letter of commitment to the NBP *Code of Good Practice*. The NBP hopes to involve up to 100 demonstration agencies to pilot the program. The NBP is providing those demonstration agencies with technical assistance in developing their EMS and recognition in the form of luncheons, workshops, other NBP-sponsored activities, and a plaque for display at their offices. The NBP supports this recognition and technical assistance as important to establish and maintain program momentum during the initial program launch phase, as concrete program benefits from independent EMS verification may take one or two years to be evident. However, the NBP will restrict recognition efforts to the program demonstration agencies. This ensures that, in the future, the NBP

can draw a more clear line between biosolids organizations in the process of developing their EMS and those achieving EMS Program participation through the successful completion of an independent third party verification audit.

The demonstration agencies are serving as prototypes for the NBP EMS Program. As such, the NBP understands that the NBP technical assistance activities - including gaps analysis and readiness assessments - provided for the demonstration agencies will continue and these activities are not inconsistent with the recommendation to avoid providing a formal statement from the NBP about the state of an organization's EMS. The NBP may consider the possibility of providing technical assistance, including an informal readiness review, to future organizations who sign a declaration of commitment to the NBP Code of Good Practice and recognize that this activity, as well, is yet consistent with the decision to not provide any formal statement about the status of an organization's EMS before receiving the third party verification audit.

3.4 Planning for the On-Site Audit

If the EMS paperwork is complete and indicates general conformance with the requirements of the *EMS Elements*, the lead auditor shall determine, based on the size and complexity of the facility, whether it is necessary to involve additional auditors to complete the site visit within a reasonable time. The lead auditor shall determine how many additional auditors are necessary, and contact appropriately qualified people to ascertain their availability. Once the audit team has been selected, the lead auditor shall schedule a time for the site visit with the representative of the organization being audited. A typical on-site verification audit is expected to require approximately 2 to 5 days of on-site time. The amount of time needed can vary, however, depending on the type and complexity of biosolids operations, the geographic location of the organization's facilities, and the number of auditors on the EMS verification audit team. The lead auditor shall contact the representative of the organization to set the dates of the site visit and discuss the scope, agenda, and any audit requirements. These requirements include: availability of a private room and/or working area; use of a telephone; provision of lunch on site; any issues related to "rights of entry"; use of local auditors; availability of relevant personnel, including top management, for interviews; any health and safety requirements or precautions that may be relevant to the team during the audit; and any other logistical or administrative activities that need to be coordinated or planned prior to the on-site visit.

Following this contact, the lead auditor shall provide an audit plan and agenda to the representative of the organization. The audit plan shall identify the biosolids value chain critical control points for possible observation during the audit. In addition to the tentative audit agenda and plan, the lead auditor shall also provide the organization with the following information:

- Composition of the audit team;
- List of individuals (by generic position titles) whom the auditor would like to interview, to ensure that they have time available during the on-site visit;
- Letter from lead auditor to applicant to confirm dates and establish the process, protocol, and auditor expectations for the organization (e.g., availability of personnel and documents during the audit, provision of a private room and/or working area, use of a telephone, provision of lunch); and
- List of additional materials that should be available for on-site review during the audit.

CHAPTER 4: On-Site Verification Audit

This chapter addresses the various activities of the NBP Third Party EMS Verification that occur during the on-site verification audit, including the audit scope and approach, format, types of testing, and general evaluation criteria.

4.1 On-Site Audit Scope and Approach

The on-site portion of the audit should emphasize examination of the effectiveness of the organization's biosolids management systems, as implemented, at delivering the organization's intended outcomes - which should be documented in the EMS Manual, environmental policy, and/or goals and objectives - on a consistent basis. The NBP directs auditors to include as an audit activity, emphasis on those areas of an organization's management system that are necessary, as defined by the participating organization, to achieve the NBP's goal of promoting environmentally-sound and publicly accepted biosolids management.

4.1.1 Onsite Audit Scope

During the onsite portion of the audit, auditors shall examine the organization's operations (including wastewater treatment facilities, pretreatment and collection programs, storage facilities, transportation equipment, and final use and/or disposal sites) related to the biosolids value chain, and review records and documents that are not included in the EMS Manual and application materials.

Consistent with the NBP *EMS Elements*, the onsite EMS audit scope encompasses the entire biosolids value chain (pretreatment and collection through final use or disposal). The auditor should remember, however, that as an EMS for biosolids, audit emphasis should be on those activities that relate to the biosolids value chain, as opposed to all wastewater utility activities. The organization's selected critical control points throughout the biosolids value chain determine the scope of the organization's EMS. Therefore, the auditor need only examine activities throughout the biosolids value chain insofar as there are critical control points that the organization relies upon to ensure that the characteristics of their biosolids material (e.g., solids content, metals, pathogens, odor, plastics, vector attraction) satisfy the regulatory, quality, and public acceptance requirements associated with the organization's handling, management, and final use or disposal of the biosolids material.

The NBP intends for all audits, including third party verification, third party interim, and internal audits, to include a sampling of activities for direct observation during the onsite portion of the audit. The auditor shall select a sampling of activities for direct observation, based on the organization's identified critical control points, with the following exceptions.

- To maintain EMS Program credibility, and to achieve the NBP's goal of increased public acceptance of biosolids management activities, the NBP requires that, during verification audits, the auditor directly observe all facilities that produce biosolids and are covered by the organization's EMS. Facilities that "produce biosolids" are considered those that include processes in the value chain from solids stabilization forward.

- The NBP does not require direct observation of all final use and disposal sites during the verification audit. However, some specific criteria for auditors to use in selecting final use and disposal sites for direct observation are provided in sections 4.2.4 and 4.2.5.

Auditors should note that the audit does not entail an analysis of biosolids material characteristics by the auditor, only that the organization has effective systems for ensuring that biosolids material characteristics meet all requirements associated with its intended final use and/or disposal method.

4.1.2 On-Site Audit Approach

During the desk audit, the auditor should have been able to understand the organization's management processes and the steps in the biosolids value chain that are relevant to achieving the intended final use(s) or disposal. For example, if the only final use or disposal method for the biosolids material is on-site incineration, then transportation, land application, and landfill are not relevant value chain steps for the organization.

During the on-site audit, the auditor shall look for objective evidence, at each step in the value chain that is relevant to the organization, that the organization's actual practice conforms with that documented in its EMS. If the auditor has any indication that actual practices diverge from practices documented as part of the EMS, the auditor shall assess the degree to which the finding suggests a weakness in the organization's biosolids management system. In particular, a divergence in actual practice can have important implications for the completeness and appropriateness of the critical control points, legal and other requirements, and operational controls that are included in the organization's EMS.

During the on-site audit, the auditor shall also look for objective evidence that the organization's EMS is functioning as intended. This is largely done through the use of transaction testing, described in greater detail in section 4.5.2 and examining outcomes produced by the EMS, further described in section 4.5.3.

4.2 On-site Audit Format

This section summarizes the typical format of an on-site EMS verification audit. The specific structure and agenda for the site audit will depend on multiple factors, including the nature of the organization's operations, the final use or disposal of biosolids material, the number of wastewater treatment facilities, the location of final use and disposal facilities, relevant processes and steps in the biosolids value chain, and the presence of contractor operations. Based on the desk review of the organization's application and EMS Manual, the lead auditor should have sufficient information to work with the facility to prepare a preliminary plan and agenda for the site visit. While the lead auditor has discretion in arranging the schedule and plan for the on-site audit, the NBP recommends that the general agenda and structure of the audit follow the format discussed below.

4.2.1 Collection of Objective Evidence

The primary focus of the on-site audit is to collect objective evidence that verifies that the organization's biosolids EMS is functioning as intended, that practices and procedures are conducted as documented, and that the EMS, as implemented, is aligned with the *Code of Good Practice* and NBP EMS Program objectives.

To collect objective evidence, the audit team shall conduct interviews, review on-site documentation, and directly observe selected activities and locations that are relevant to critical control points and associated operational controls identified by the organization as being important to managing it biosolids-related operations and material. These various "modes of audit inquiry"(interviews, document review, and direct observation) enable the audit team to collect "objective evidence" that verifies whether or not the organization's EMS adequately addresses the NBP expectations and requirements as stated in the *EMS Elements.* Interviews shall assist the auditors in determining whether employees are familiar with the environmental policy and its requirements, and their specific EMS-related responsibilities. Review of on-site documentation and records allows the auditors to determine whether required documents exist, procedures are being implemented as written, and that appropriate records are being kept. When specific questions arise that the biosolids organization representative cannot answer, or that require a review of specific areas, an auditor may need to observe activities or locations directly, accompanied by an organization representative. Such evidence might include monitoring logs, training records, posted notices, or meeting minutes. If written evidence is not available, the auditor will need to question a sample of relevant employees to determine that their answers are both consistent and support the EMS. Auditors shall use these three methods of collecting objective evidence during each phase of the on-site audit discussed below.

> ***Objective Evidence*** –policies, ordinances, procedures, manuals, inspection checklists, operating logs, annual reports, and other documents and records; observations of practices, equipment, and facilities; and interviews with key personnel, management, or contractors that objectively demonstrate conformance with the *EMS Elements* requirements.

4.2.2 Entrance Meeting and Document Review

The site visit will start with an entrance meeting, which will be led by the lead auditor. It is recommended that the initial meeting and document review be conducted at the organization's primary location or facility, where important EMS documents discussed below are accessible. This location is likely to vary depending on the size and structure of the organization. For example, large organizations may have a central office that is separate from its treatment facilities and other facilities, whereas smaller utilities may have their administrative offices and EMS records located at their primary wastewater treatment facility.

The purpose of this meeting is to accomplish the following objectives:

- introduce members of the audit team to the organization's representatives;
- brief the organization's EMS representative, facility manager, and key staff on the scope of the audit, audit team activities, and requirements; and
- confirm the plan and agenda for the audit.

Following the entrance meeting, the audit team will likely need to review documents and continue discussions with key representatives of the organization to confirm the specific critical control points, facilities, and locations that should be observed and/or visited during the subsequent on-site audit phases discussed below. The audit team might also review copies of previous internal or third party audit reports at this time to identify potential areas for exploration or follow-up. Based on this initial document review, the audit team should work with key representatives of the organization to finalize the site audit plan and agenda. Auditors should expect that the entrance meeting and document/records review will typically require a half-day of on-site time.

4.2.3 Direct Observation of Facilities and Equipment

During the on-site portion of verification audits, the auditor (or at least one member of the audit team) shall directly observe all treatment works that produce biosolids and are covered by the organization's EMS. As described in section 4.1.1, facilities that produce biosolids are considered those that include processes in the biosolids value chain from solids stabilization forward. For interim audits, the lead auditor shall determine if direct observation of all treatment works that produce biosolids is necessary.

The auditor shall directly observe a sampling of all other facilities and equipment covered by the organization's EMS through selection of critical control points. The length of the onsite portion of the audit shall vary according to the scale and complexity of the biosolids management operations.

4.2.4 Final use and Disposal Operations

The NBP believes that direct observation of final use and disposal operations, whether operated by contractor or not, are necessary for program credibility. Because many final use or disposal operations are not located on or adjacent to the treatment facilities, auditors are not required to observe directly all final use or disposal operations, as the costs of such a requirement could be prohibitive. The NBP seeks to balance program credibility with audit costs by not requiring that all final use or disposal operations receive direct observation. Instead, the NBP has established the following requirements.

- The auditor shall choose a sampling of final use and disposal operations to observe directly. However, for all final use and disposal operations, the auditor shall examine EMS documents and conduct interviews (could be conducted via telephone).

- If final use and disposal operations are performed by a contractor or contractors, then the auditor shall observe directly, at a minimum, one site for each contractor.

- If the organization utilizes multiple types of final use and disposal operations, then the auditor shall observe directly, at a minimum, one site for each type of final use and disposal method.

Some final use and disposal operations may take place on private property not owned by the organization or its contractor (e.g., land application on a private farm). In this case, the organization or its contractor may need to include a contract clause to provide right of entry. Additionally, the NBP believes that flexibility in the audit plan is necessary to address the intermittent and changing nature of some final use and disposal operations (e.g., land application at certain sites might be halted during winter months).

For cases where a biosolids management organization has multiple final use and/or disposal operations, the auditor shall consider, in addition to the minimum criteria identified above, which operations:

- are scheduled for activity during the time of the audit;
- might require intensive management activity; and
- have a history of or are at higher risk of having public issues or concerns (e.g., sites in close proximity to residential/commercial areas).

However, the NBP does not require that final use and disposal sites included for direct observation have current activity at the time of the audit, as there can be some benefit to examining inactive sites, such as sites where biosolids had been previously applied or stored. Additionally, the NPB cautions auditors not to focus solely on

those land application sites that have received the most public attention or are the largest, but also consider some of the smaller and more out of the way sites as the NBP believes it important that publicly accepted and environmentally sound biosolids management practices are utilized consistently at all sites, including those that otherwise might receive less intensive management.

As a result of the seasonal nature of some biosolids management activities, auditors should expect that agencies may request that the onsite portion of the audit be conducted during a specific time of year. As well, auditors may determine that they need to revisit, for direct observation, sites that had been inactive during the time of the audit to complete the audit and make an EMS verification determination.

If an final use or disposal operation is a considerable distance from the organization's wastewater treatment facility(s) or focus of operations, local or regionally-based auditors may conduct the site visits to keep audit costs lower (the lead auditor shall audit all operations close to the organization's wastewater treatment facilities). Local auditors shall send audit findings on final use and disposal operations to the lead auditor. If the third party auditor finds that documentation and interviews are inadequate to satisfy the auditor that there is a healthy system throughout all final use and disposal operations, then the auditor may find it necessary to visit additional sites or take further actions to determine the health of those parts of the biosolids EMS.

4.2.5 Contractors

During the desk and on-site audits, auditors are expected to examine contract documents and conduct interviews with contractors to determine if contractor roles and responsibilities are defined, as consistent with the *EMS Elements.* In cases where contractors are used by the organization to manage key critical control points and associated operational controls, the audit team shall audit these operations in a manner identical to operations at the biosolids organization (see also sections 4.2.3 and 4.2.4). During the audit, full EMS documentation shall be made available from contractors and a contractor representative is expected to attend portions of the on-site audit, where appropriate.

4.2.6 Follow-Up

In some cases, the audit team may need to spend additional time prior to the close of the site audit to return to the organization's facilities and/or administrative offices to follow-up on unresolved areas of audit inquiry or questions that arose during the course of audit activities. For example, auditors may find it appropriate to examine the organization's communications processes (Element 9) or other EMS system processes (see Elements 14 through 17) following the review of the treatment works , final use, and disposal operations, since the auditors may be aware of potential EMS system weaknesses that need to be more thoroughly explored and tested.

4.2.7 Exit Meeting

An exit meeting shall be held with representatives of the organization to present the findings of the audit. This meeting can provide the opportunity for the organization to present additional information that may not have been available during previous audit activities. The tentative outcome of the audit shall be discussed at the exit meeting.

4.2.8 Recording Nonconformances

During the audit, the audit team shall work closely with the representative of the biosolids and shall keep this representative informed of any findings and potential findings as they are discovered. This allows the organization to provide additional information as available to assist the auditors in assessing the EMS appropriately.

Audit team members shall meet independently of representatives of the organization to discuss any questions and findings resulting from the interviews and document review and determine exactly where nonconformances exist.

Prior to the exit meeting, EMS strengths, weaknesses, and all nonconformances identified during the audit shall be recorded on an audit findings sheet. The auditor will then present and discuss these findings with the representative of the audited biosolids organization at the exit meeting.

4.2.9 Peer Involvement

The NBP believes that the participation of peer organizations can have a variety of benefits, such as technical assistance, feedback, and advice to be gained. As a result, organizations may choose to have peers participate in the development and implementation of their EMS. Peers may also observe the independent third party audit and serve as a resource for the organization (e.g., by providing technical assistance, conducting audit readiness assessments, providing advice on corrective actions, etc.). However, peers may not be part of the audit team (e.g., they do not have a role in collecting objective evidence or making the verification recommendation). As well, it is critical that peers do not interfere with the third party audit. Any technical assistance or advice provided by peers shall come either after the third party audit, or before the third party audit as part of assessing readiness.

4.3 Evaluation Criteria: System Nonconformances

For each of the EMS testing approaches described above and all of the NBP EMS requirements, the auditor must understand the applicable criteria for evaluating whether or not the organization's EMS satisfactorily addresses the requirement. In other words, the auditor must understand what the "hurdle", or "bar", is for each requirement and test. Performance above this threshold indicates that the organization's EMS sufficiently addresses the particular EMS requirement. Performance below the bar indicates that the organization's EMS does not sufficiently address the particular EMS requirement. This latter case results in a "nonconformance". In this case, the auditor must then distinguish whether the nonconformance constitutes a minor nonconformance or a major nonconformance. Definitions of major and minor nonconformances are the same as used for the EMS paperwork review or desk audit.

- **A minor nonconformance** is one that, when taken by itself, does not indicate a systemic problem with the EMS. It is typically a random or isolated incident. Minor nonconformances involve discrepancies within an element of the *EMS Elements* or the organization's environmental management system that do not significantly affect the implementation of the environmental management system and commitment to conform with the *Code of Good Practice* – a systemic problem is not indicated.

- **A major nonconformance** occurs when one of the elements in the *EMS Elements* has not been addressed or has not been addressed adequately. Major nonconformances can occur when an organization has documented a process or procedure, but has not implemented it or cannot demonstrate effective implementation. A major nonconformance can also occur if an umber of minor nonconformances in a given activity or against a given element point to a systemic failure. Major nonconformances also exist if an element is being disregarded sufficiently during organization operations that it is having a noticeable effect on the organization's environmental compliance, environmental impacts, or the quality of the material being produced – there is a gap or problem that could lead to a systemic failure.

The NBP recognizes that not all environmental management systems will be perfect, if any. The NBP also understands that an EMS does not need to be perfect to be effective. Minor nonconformances are expected as program participants adapt to address diverse changes and challenges. It is essential, however, that an organization's EMS actively engages a process of continual improvement to identify, learn from, and respond to nonconformances so that they are addressed in ways that prevent recurrence.

When the auditor has identified a minor nonconformance during the on-site audit, the organization shall resolve the nonconformance and provide documentation to the auditor within 30 days of the audit. Individual findings of minor nonconformances shall not prevent an organization from successfully completing a verification or interim audit.

When the auditor has identified a major nonconformance during the on-site audit, the organization must resolve the nonconformance and have the auditor conduct another on-site visit to verify that the nonconformance has been addressed. Failure to address a major nonconformance identified during an on-site audit shall prevent an organization from successfully completing a verification or interim audit. The NBP recommends that organizations correct any major nonconformances within 90 days, but the required time frame is subject to negotiation with the auditor. If a major nonconformance is resolved within the 90-day time period or other mutually agreed-upon time frame, the auditor is only required to verify that the specific nonconformance has been addressed. Failure to address a major nonconformance during within the 90-day period or other mutually agreed-upon time frame shall result in the organization having their program participation status revoked, or not achieving participant status, until another full verification audit has been completed successfully.

4.4 Methods of Collecting Objective Evidence

There are three primary methods of collecting objective evidence available to auditors during the on-site verification audit to determine an organization's conformance with regard to the *EMS Elements* and requirements. These methods include document review, interviews, and direct observation of operations. Whenever possible, the audit team should utilize more than one of these methods to ensure that findings are consistent and cross-checked. Each of these methods of collecting objective evidence is discussed in greater detail below.

4.4.1 Document and Records Review

Document and records review provides one method of collecting objective evidence for auditors. In some cases, the *EMS Elements* identify specific requirements regarding documents or records that an organization must have (e.g., Emergency Preparedness and Response Plan). In this case, document and records review enables the auditor to determine both that the document or record exists and that it addresses any required topics or information. In other cases, document and records review may provide evidence that an organization has a particular system in place or is following a required procedure. Typical documents or records reviewed during an EMS verification audit include written policies, procedures, manuals, reports, brochures, action plans, forms, operating records, and logs.

4.4.2 Interviews

Interviewing is another useful tool for collecting objective evidence during an audit. By asking questions of employees and contractors who work with a biosolids organization, auditors can gain a better understanding of how management systems and practices actually work. Interviews also provide information about the degree to which aspects of the EMS are understood and implemented.

4.4.3 Direct Observation

Direct observation is the third method of collecting objective evidence available to auditors. During the on-site audit, an auditor might observe if an employee is following a procedure or operating a piece of equipment in light of expectations from the EMS or the *National Manual of Good Practice*. Direct observation provides a useful means for verifying that an organization is actually implementing procedures and controls prescribed in the EMS and other relevant documentation.

4.5 Audit Testing

There are three complementary approaches to testing that auditors shall employ to evaluate whether an organization's EMS meets the expectations and requirements identified by the NBP. These testing approaches are "requirement verification", "transaction testing", and "examining outcomes". Requirement verification ensures that the organization's EMS meets the basic requirements of the *EMS Elements.* Transaction testing and outcomes examination ensure that the organization's EMS is functioning as intended and producing desired outcomes.

4.5.1 Requirement Verification

Requirement Verification -looks at specific NBP EMS elements to determine if the organization's EMS satisfies the associated requirements, as defined in the NBP's *EMS Elements*.

Requirement verification looks at specific NBP EMS elements to determine if the organization's EMS satisfies the associated requirements, as defined in the *EMS Elements.* There are specific requirements associated with each NBP EMS element that can be individually evaluated or tested. Failure of an organization to completely or adequately address the minimum requirements associated with each EMS Element shall likely constitute a finding of major nonconformance by the auditor. Many of the requirements of the *EMS Elements* can be tested by determining if there is a particular process or system in place, or if a document or procedure exists. Many of the required, documented procedures, and plans can be examined during the desk audit review. Additional collection of objective evidence during the on-site audit can demonstrate or document that the required process, procedure or document does exist and/or that it operates consistently with NBP EMS expectations. Objective evidence typically includes some form of physical evidence, such as written policies, procedures, manuals, reports, brochures, action plans, forms, records, information systems, or equipment. Objective evidence can also include interview results (e.g., employee awareness of a procedure), planning meetings, meetings with interested parties, and other evidence that provides indications that a requirement is being met or not met. An example of the Requirement Verification approach is presented below.

Element 1: Documentation of EMS for Biosolids

To assess if an organization's EMS for biosolids meets the requirements of Element 1, the auditor would look to answer affirmatively the following questions through the collection of objective evidence.

- Does the organization have an EMS Manual?
- Was the EMS Manual approved by a level of the organization's management with the authority to commit people and resources to biosolids management activities?
- Does the EMS Manual contain the organization's Biosolids Management Policy and EMS Procedures required by the *EMS Elements*?
- Does the EMS Manual contain or cross-reference Public Participation, Communications and Emergency Preparedness and/or Response Programs and Plans required by the *EMS Elements?*
- Does the EMS Manual cover all critical control points for its biosolids management activities throughout the biosolids value chain?
- Does the EMS Manual include or cross-reference all operational controls, procedures, processes and other management methods used to achieve and maintain compliance with legal and other requirements?
- Does the EMS Manual describe those biosolids management activities assigned to and performed by contractors?

4.5.2 Transaction Testing

The NBP believes that it is also important to verify that required processes and procedures actually work as documented and intended. Transaction testing provides a useful approach for investigating overall system health (e.g., if the system is actually working as documented and intended). Transaction testing enables auditors to assess how well various components of an organization's EMS function in practice - and how well they work together - from a broader systems perspective. Far too often, organizations' efforts to develop environmental management systems become paper pushing exercises that result in a set of binders on the shelf,

rather than in changes in the ways a facility operates. Documentation of policies, procedures, and EMS activities is important for supporting EMS implementation, creating institutional memory, and demonstrating the existence of environmental management systems. However, documentation does not ensure that the policies and procedures are followed or that the EMS works as intended. Transaction testing provides a means for ensuring that an organization is working actively to implement and continually improve its EMS. The concept behind transaction testing is that, just as an organization's activities are linked throughout the entire biosolids value chain, the elements of the EMS are linked. Transaction testing ensures that various elements of the EMS are functioning in coordination. For example, if internal audits are being conducted (as required in Element 16), have the associated identified corrective actions been implemented (as required in Element 14)? The *EMS Elements* include a number of linkages such as this.

> ***Transaction Testing*** - enables auditors to assess how well various components of an organization's EMS function in practice - and how well they work together - from a broader systems perspective.

Another way of looking at transaction testing of the linkages between EMS elements is to examine certain changes or events that should trigger a response from the EMS. By tracing how an organization's EMS responds to a transaction or triggering event, the auditor can better identify and assess gaps or weaknesses. Examples of transactions and triggering events include the enactment of a new regulation or requirement, the installation of new equipment, a change in personnel, a spill of biosolids material, or an odor complaint by a local resident.

Auditors have substantial latitude in selecting when and how they use transaction testing. In most cases, the auditor would use a transaction test to confirm that the organization's documented system or procedure is operating as intended and documented in the EMS. The auditor might select a particular transaction or triggering event (e.g., a change in biosolids land application personnel, a complaint documented in the organization's complaint log, a past compliance violation), and track it through the organization to see how the various components of the EMS responded. In particular, the auditor should be interested to discern answers to the following questions.

- Did the transaction or triggering event cause all relevant management system activities to occur as intended in the organization's EMS?
- If the triggering event was associated with an undesirable outcome (e.g., public complaint, compliance violation, adverse environmental impact), was the incident responded to as intended by the EMS, and, did the EMS prompt appropriate actions to prevent recurrence of the undesirable outcome?

Further examples of transactions and triggering events and associated transaction tests are provided in the table below.

Transaction or Triggering Event	**Potential EMS Interactions**	**Transaction Test**
New or modified regulation	· Has the organization identified a potentially applicable requirement? (Element 4) · Has the organization evaluated and documented	Identify a recent or modified regulation or requirement that may be applicable to the facility. Track that requirement through the system.

	the applicability or non-applicability of the regulation or requirement? (Element 4) Have procedures been developed, documented, and implemented to address the newly applicable requirement? (Element 10) · Have the EMS Manual or related documents been updated to address the new requirement? (Element 1) · Have roles and responsibilities for implementing the procedure/ addressing the requirement been assigned and communicated? (Element 7) · Have appropriate monitoring and measurement activities been instituted to address the requirement, if appropriate? (Element 13) · Have record keeping requirements been followed? (Element 12) · Has the facility satisfied its compliance obligations related to the requirement? · Has the organization made information on the applicability of this requirement available to the public? (Element 9)	
Periodic regulatory requirement	· Has the applicability of the requirement been identified and documented? (Element 4) · Have roles and responsibilities for addressing the requirement been assigned and communicated? (Element 7) · Have procedures and practices for addressing the requirement been developed and implemented? (Elements 10 and 13) · Are records related to the	Identify a regulatory requirement that is likely to be applicable to the facility, with particular emphasis given to requirements that result in frequent violations. If the facility had a past compliance violation, it may be appropriate to target that requirement. [The auditor should also try to understand what factors caused any past

		requirement complete and organized? (Element 12)	violations, so they can transaction test areas where the EMS failed in the past.]
Equipment or process change		· Has the EMS Manual, including documentation of critical control points and operational controls, been updated to address the equipment or process change? (Elements 1, 3, and 10) · Has the organization identified potential and actual environmental impacts associated with the equipment or process change? (Element 3) · Have SOPs been prepared or revised to address the equipment or process change? (Element 10) · Have appropriate personnel been trained on the equipment or process and associated environmental management responsibilities? (Element 8) · Has emergency response plans and procedures been modified (if necessary) to address the equipment or process change? (Element 11)	Investigate how a new piece of equipment or process line was integrated into facility operations and the EMS.

Contractor change	· Are environmental roles and responsibilities assigned and communicated to new contractors? (Element 7) · Are contractors appropriately trained to perform their environmental responsibilities? (Element 8) · Is this training documented and tracked? (Element 8) · Does the contractor sufficiently understand their responsibilities to perform their tasks in a manner consistent with the EMS and *Code of Good Practice*? (Element 8)	Identify a new contractor and track them through the system (include interview with contractor).

Spill or release	· If any spill or releases have occurred, why did they occur? · Did the organization respond according to their procedures? Were emergency response plans followed? · Were personnel appropriately trained for response? (Element 8) · Was the appropriate response equipment available? (Element 11) · Were regulatory notification, reporting and record keeping requirements followed? · Were response actions appropriate to the type and scale of incident? · Did the organization engage a root cause analysis and/or continuous improvement process to learn from the incident and prevent future occurrences? · Have any associated process upset or equipment failure conditions been documented in appropriate logs and addressed through corrective actions to prevent	Does the facility maintain spill or release reports? If so, investigate how the spill or release was handled by the EMS.

	recurrence?	
Public inquiry or complaint (e.g., public questions, odor complaint)	· Did the organization process the inquiry or complaint in accordance with its documented procedure? (Element 9) · Did the organization acknowledge receipt of the inquiry or complaint and/or respond in a timely manner? (Element 9) · Were appropriate personnel sufficiently trained to respond to the inquiry or complaint? (Element 8) · Was the inquiry or complaint documented or recorded appropriately? · Is management sufficiently aware of potential public concerns raised by the inquiry or complaint? · Has the inquiry or complaint been considered (along with others) in the organization's periodic review of EMS goals and objectives?	Track a public complaint or inquiry through the system.

Auditors have substantial latitude in which type of transactions they test, as appropriate choices will depend on the specific attributes (e.g., processes, procedures, equipment, history) of the organization being audited. For example, if the facility had a past compliance violation, it may be important to investigate what systemic factors caused the violation.

4.5.3 Examining Outcomes

The third method of testing available to auditors is examining outcomes, which allows the auditor to verify that the organization's EMS is functioning as intended and producing desired outcomes.

The NBP's *Code of Good Practice* is a broad framework of goals and commitments to guide biosolids management activities. Those who embrace the Code and participate in the NBP's EMS program commit to "do the right thing." Code subscribers and EMS participants pledge to uphold the 10 principles in the Code, which are focused on a commitment to quality practices and operations, as well as quality outcomes.

Although this is a systems-based program, the NBP believes that public acceptance will ultimately depend on the ability of the NBP and individual program participants to demonstrate that the EMS produces better compliance, better environmental performance, good management practices, and improved relations with interested parties. Therefore, the NBP has identified four areas where it has defined specific, auditable expectations for examining outcomes as important indicators of EMS health (e.g., "outcomes matter"). These four areas include:

environmental performance; regulatory compliance; public participation; and quality biosolids management practices. Performance outcomes relate to the commitment to continual improvement in all aspects of biosolids management. The *EMS Elements* require that environmental performance goals and objectives must be established and evaluated to identify potential areas of weakness in an organizations' EMS. Regulatory compliance outcomes are important to assure that utilities are attentive and successful in their efforts to meet compliance obligations. To achieve the outcome of public acceptance, utilities must be seeking and creating meaningful opportunities for public participation in the planning, implementation, and auditing of the EMS. And finally, a facility must demonstrate a strong commitment to the utilization of quality biosolids management practices as dictated by the *Code of Good Practice* and captured in the *National Manual of Good Practice*.

The NBP believes that these four outcomes are critical indicators of the degree an organization's EMS is functioning as intended and conforms with the NBP's EMS program expectations and goals defined by the *Code of Good Practice*. Auditors must note, however, that failure to achieve desired outcomes does not necessitate nor in and of itself constitute a finding of system nonconformance. Rather, the NBP has determined that past and current outcomes related to environmental performance, regulatory compliance, public participation, and quality biosolids management practices shall be used by auditors to identify potential areas of weakness in an organization's EMS. For example, the presence of past compliance violations or public complaints shall prompt the audit team to explore how the organization and its EMS responded to the performance outcome. The NBP does not expect that an organization would never have performance problems. However, the NBP expects (and auditors shall base verification determinations on the evidence) that organizations respond actively to such performance problems and seek to prevent the performance problem from recurring. The NBP expects that audit reports will explicitly identify the outcomes examined and the relationship they have to system health or deficiencies.

4.5.4 Environmental Performance

Consistent with the principle that "outcomes matter", NBP EMS auditors shall examine the organization's progress towards identified priorities for improving environmental performance, as reflected in the biosolids organization's established goals and objectives, as one potential indicator of EMS health.

The NBP believes that an auditable commitment to performance is critical to fostering credibility with interested parties and to achieving the ultimate goal of publicly accepted biosolids management practices. While the NBP considered the possibility of establishing specific, auditable environmental performance minimums as a basis for NBP EMS program participation, this prescriptive approach was rejected as too inflexible and infeasible. The NBP believes strongly, however, that the ability of the NBP and individual program participants to demonstrate that the EMS produces meaningful environmental performance improvements is critically linked to the program's public acceptance objectives. The NBP's approach builds on the *Code of Good Practice* commitment to continual improvement - "To seek continual improvement in all aspects of biosolids management." - and looks to ensure that NBP participants focus not just on EMS processes and procedures, but on environmental outcomes as well.

Through the *EMS Elements,* an organization is required to identify biosolids program goals and objectives. The NBP defines biosolids program goals as "environmental performance improvement goals that are consistent with the organization's biosolids management policy to assure biosolids management 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." The NBP defines biosolids program objectives as "detailed environmental performance improvement requirements, based on a biosolids program goal."

Examining Environmental Performance Outcomes

Auditors shall examine the organization's progress towards identified priorities for improving environmental performance, as reflected in established goals and objectives, as one potential indicator of EMS health. If an auditor detects a pattern of lack of improvement with respect to those environmental performance-related goals and objectives, the auditor shall interpret this as an indicator that the organization's EMS is potentially failing to meet the NBP EMS Program expectations to promote environmentally sound biosolids management practices and the organization's commitment to continual improvement. The auditor shall examine the organization's EMS to determine if the cause for lack of continual improvement constitutes a system nonconformance. For example, the cause may be that certain operational controls tied to those environmental improvements have not been implemented or that management reviews are not taking place as necessary to address the possible need for changes to the policy, the goals and objectives, the biosolids management program, or other EMS elements.

Auditors shall recognize that some environmental performance goals and objectives may require long term planning and investment of resources. Auditors shall also recognize that organizations may focus goals and objectives only on certain environmental impacts at one time, while environmental performance objectives for others may be to maintain current performance levels (assuming that regulatory and public acceptance requirements for biosolids are being met).

In examining environmental performance outcomes, an auditor shall expect that a organization has done the following:

- Identified potential environmental impacts associated with the organization's identified critical control points, with respect to the entire biosolids value chain (requirement 3.2);
- Established environmental performance goals and objectives that reflect the organization's identified environmental impacts and related critical control points (requirement 5.2);
- Provided interested parties with meaningful opportunities to express views and perspectives relative to biosolids management activities, including concerns about environmental impacts, biosolids program performance, and potential areas for improvement (requirement 6.4)
- Considered input from interested parties in initially developing program goals and objectives during EMS implementation and in updating them as part of periodic review of biosolids management program performance (requirement 6.5);
- Developed and implemented standard operating procedures, work management practices or other appropriate methods at all critical control points throughout the biosolids value chain to effectively manage potential environmental impacts (requirement 10.1);
- Established and maintained regular monitoring and measurement procedures and practices for all biosolids management activities to measure biosolids program performance at critical control points and track progress toward achieving program goals and objectives (requirement 13.1);
- Completed a periodic written Biosolids Management Program Performance Report (at least annually), summarizing the organization's progress toward achieving its biosolids program goals and objectives (requirement 15.1);

- Established and maintained an internal audit program to periodically analyze the EMS for biosolids and determine whether it is effectively meeting its biosolids management policy, program requirements and biosolids program goals and objective (requirement 16.1); and

- Reviewed the EMS and its performance relative to policy commitments, goals, objectives and established performance measures to ensure its continuing stability, adequacy and effectiveness and addressed the possible need for changes to policy, the goals and objectives, the biosolids management program and other EMS elements based on internal EMS audit results, external verification EMS audits by third parties, changing circumstances, and the commitment to continual improvement (requirement 17.1).

4.5.5 Regulatory Compliance

Consistent with the principle that "outcomes matter", NBP EMS auditors shall examine the organization's performance in meeting legal requirements (regulatory compliance) as one potential indicator of EMS health. The third party EMS verification audits are not intended to be regulatory compliance audits that verify whether or not an organization is complying with all applicable regulatory and legal requirements. The NBP believes that a systems audit, which verifies the existence of a robust EMS, provides an equal, and potentially better, indication of a organization's commitment to meeting and going beyond regulatory compliance obligations on an ongoing basis than a regulatory compliance audit, which looks only at a given point in time. However, the NBP believes that the compliance status of an organization can provide an indication of how well the organization's EMS enables it to manage operations within established parameters.

The NBP recognizes the importance of improving public confidence in regulatory compliance assuredness. Through the *Code of Good Practice*, organizations are required to pledge "To commit to compliance with all applicable federal, state, and local requirements." Consistent with a systems audit approach, auditors should determine that a robust compliance management system is in place that effectively identifies and tracks regulatory compliance obligations, proactively identifies potential regulatory compliance issues, assures effective implementation of applicable compliance activities, quickly detects regulatory compliance problems, and addresses regulatory compliance problems in a timely fashion. The NBP expects participants to establish a procedure for identifying and tracking legal (federal, state, and local) and other requirements applicable to the organization's biosolids management activities to provide the basis for the NBP, auditors, and individual program participants to assure interested parties that the EMS is effectively complying with regulatory requirements. The procedure shall include a management process to incorporate changes and new requirements into the organization's EMS.

Examining Regulatory Compliance Outcomes

NBP EMS auditors shall examine the organization's performance in meeting legal requirements (regulatory compliance) and regulatory compliance-based goals and objectives as potential indicators of EMS health.

Auditors shall review documentation containing regulatory compliance information, such as recent regulatory inspection reports and annual biosolids reports, and gather other objective evidence about selected regulatory compliance endpoints. Auditors shall review EMS documentation to verify that the organization has established a procedure for identifying and tracking legal (federal, state, and local) and other requirements applicable to the organization's biosolids management activities. The procedure shall include a management process for incorporating changes and new requirements into the organization's EMS. Auditors shall record in the audit report, that the organization has established and maintained records of applicable legal and other requirements (assuming that this has in fact been done). As well, auditors shall provide in their audit report a statement, based on the review of documentation and direct observation of selected regulatory compliance endpoints, as to the

adequacy of the management system in meeting the participant's commitment to regulatory compliance. If an auditor detects a pattern of the organization failing to meet compliance obligations, or failing to make continual improvement toward compliance-based goals and objectives, the auditor shall examine the organization's EMS to determine if the cause is a system nonconformance. For example, the cause may be that certain measuring and monitoring activities have not been implemented or that roles and responsibilities for key activities related to meeting compliance have not been clearly assigned.

Areas of past noncompliance can point to places that an auditor should examine during an EMS verification audit. Through transaction testing, auditors can explore how well the organization's EMS, through its continual improvement mechanisms, has responded to the noncompliance situations. In the presence of a well-functioning EMS, the auditor should detect the implementation of controls and practices to prevent recurrence of noncompliance situations.

Auditors shall recognize that even the most well run organization may occasionally experience conditions that result in a non-compliant situation and that what the NBP believes is important is if the organization responds in a timely and appropriate manner to instances of potential regulatory noncompliance.

In examining regulatory compliance outcomes, the auditor shall expect that the organization has done the following:

- Established a procedure for identifying and tracking legal (federal, state, and local) and other requirements applicable to its biosolids management activities (requirement 4.1);
- Reflected, in program goals and objectives, legal and other requirements (requirement 5.2);
- Incorporated all legal and other adopted requirements in the operational controls of critical control points (requirement 10.2);
- Established and maintained regular monitoring and measurement procedures and practices for all biosolids management activities to assure compliance with applicable legal and other requirements (requirement 13.1);
- Developed and implemented a procedure to investigate any noncompliance with applicable regulatory requirements identified during routine monitoring and measurement or periodic internal EMS audits (requirement 14.1);
- Developed and implemented a procedure to document the necessary corrective actions taken to prevent a recurrence (requirement 14.3);
- Established formal corrective action plans to address findings of internal EMS audits and audits conducted by third parties, and documented corrective action plans describing what actions will be taken to address the audit findings, the individuals responsible, the estimated completion date, and required resources to develop and implement corrective and preventive action (requirement 14.5); and
- Established and maintained an internal audit program to periodically analyze the EMS for biosolids and determine whether it is effectively meeting its biosolids management policy, program requirements with and biosolids program goals and objectives (requirement 16.1).

4.5.6 Public Participation

Consistent with the principle that "outcomes matter", auditors shall examine the state of the organization's relationships with interested parties as one potential indicator of EMS health.

The NBP does not expect that an organization's relationships with interested parties will be positive all of the time, and organizations are not required, as a basis for program participation, to resolve the concerns of all interested parties. The NBP acknowledges that there can always be parties who are not satisfied that their concerns have been addressed or parties who are fundamentally opposed to certain biosolids management practices, regardless of the organization's environmental performance or how active and meaningful the public participation effort has been.

Rather, the NBP believes that setting up quality, two-way flows of information between interested parties and participating organizations is critical to the program's goal of publicly accepted biosolids management practices. Two-way flows of information means that information flows from interested parties in to the participating organization such that the organization has the capacity to understand the concerns and perspectives of interested parties. Requirements for how participating organizations must establish information flows into the organization from interested parties are primarily covered under Element 6, Public Participation in EMS Planning, and Element 9, Communications. As well, two-way flows of information means that information on the organization's EMS and biosolids management program flows to interested parties. Requirements for how participating organizations must establish information flows out from the organization to interested parties are primarily covered under Element 9. Communications. Also, the *Code of Good Practice* commits organizations to "provide methods of effective communications with gatekeepers, stakeholders, and interested citizens regarding the key elements of each environmental management system, including information relative to system performance."

The NBP expects that there will be substantial local tailoring of public participation plans and that organizations will remain fully in control of the decisions they make once interested party perspectives are understood. Organizations have the flexibility to choose a set of public participation activities that best meet their local needs. Most biosolids management organizations employ a variety of successful public participation mechanisms, and the NBP believes that many of those mechanisms are sufficient to meet program requirements.

Examining Public Participation Outcomes

Auditors shall examine the state of the organization's relationships with interested parties as one indicator of EMS health. For example, if, during EMS document review, an auditor encounters a pattern of repeated written public complaints, the auditor shall interpret this pattern as an indicator that the organization's EMS is failing to meet the NBP EMS Program expectations to promote publicly accepted biosolids management practices. The auditor should examine the organization's EMS to determine if the cause of the pattern of consistent complaints constitutes a system nonconformance. It could be that the failure to resolve complaints about truck traffic resulted from the organization's corrective action system functioning inadequately. In this context, however, auditors shall not judge the validity of interested party perspectives, nor shall they expect a organization to have accommodated all perspectives.

Auditors shall recognize that some organizations are implementing public participation programs for the first time, as part of participation in the NBP's EMS Program. Where this is the case, it is possible that the state of relationships with interested parties may actually appear to worsen as the public participation program is implemented. For example, this can be reflected by the number of negative comments actually rising, as opportunities for comments may not have been provided in the past. It is also possible that the lack of past negative comments was the result of interested parties not knowing about the organization's biosolids

management practices (e.g., lack of negative comment does not necessarily equal public acceptance), and thus negative comments appear to rise as the program is implemented.

Auditors shall also take into consideration the maturity of the organization's biosolids management program. For example, a well established and accepted program may, at its outset, have conducted substantial public education and involvement efforts, but now is maintaining ongoing, targeted relationships with individual community members or groups.

In examining the state of relationships with interested parties, the auditor shall expect that the organization has set up quality, two-way flows of information through meeting the requirements of Elements 6 and 9.

In conducting the audit, the auditor shall primarily rely on EMS documentation to verify public participation actions. However, the auditor, after consultation with the organization, can interview interested parties as necessary to verify the adequacy of a organization's actions.

4.5.7 Quality Biosolids Management Practices

The NBP believes that an auditable commitment to best practices is a key link to credibility with interested parties and to achieving the NBP's goal of publicly accepted and environmentally sound biosolids management practices. The *Code of Good Practice* commits organizations to implement "good housekeeping practices for biosolids production, processing, transport, and storage, and during final use or disposal operations" and to "sustainable, environmentally acceptable biosolids management practices and operations."
As such, the NBP requires that, in selecting biosolids management practices, an organization has considered and, to the extent applicable and practicable, utilized the best practices identified in the *National Manual of Good Practice* and other recognized sources as identified by the organization (requirement 10.3).

Examining Quality Biosolids Management Practices

Auditors shall examine biosolids management practice selection in the following manner.

- The auditor shall examine identified critical control points and associated operation controls in light of the *National Manual of Good Practice*, operating under the presumption that the organization knows best which practices to select for its operation.

- The *National Manual of Good Practice* intends to be "practice neutral": it provides management practices for all wastewater solids and biosolids management alternatives. Thus, auditors shall look only at those critical control points and associated operational controls that are relevant to the given organization and its biosolids final use or disposal.

- The auditor shall presume that choices on practice selection are not made "in a vacuum" and can be influenced by local political and economic situations. Thus, local tailoring of practice selection is necessary and appropriate.

- If an organization adopts practices that appear inconsistent with the *National Manual of Good Practice*, the auditor shall ask the organization to explain if the practices are inconsistent and why. Inconsistencies with the *National Manual of Good Practice* would not necessarily prevent verification if a suitable explanation is provided. However, an auditor could, if they believed the organization's choices did not adequately reflect the NBP's expectations for promoting environmental sound and publicly accepted biosolids management practices and that

the organization's explanation for inconsistencies with the *National Manual of Good Practice* were not suitable, identify this as a system nonconformance.

CHAPTER 5: Reporting, Appeals, Internal Audits and Re-Verification Audits

This chapter describes those activities that occur after the initial verification audit has been completed.

5.1 Post-Audit Activities and Reporting

Within two weeks of completing the audit, the lead auditor shall make a verification recommendation and prepare working draft audit summary and detailed findings reports. The audit summaries shall reflect the complete results of the audit, including areas of strength and weakness, any nonconformances identified, and the auditor's draft verification recommendation. The auditor shall not make any compliance determinations. The format and contents of the audit report are below. The auditor shall provide the document labeled consistent with local public disclosure protections (e.g., deliberative or working draft) to ensure that the organization can hold it as confidential as desired. This review allows the organization to ensure the technical accuracy of audit findings and develop observations for inclusion in the final summary and detailed audit reports. After the organization has reviewed the draft reports and prepared any observations, the auditor shall prepare final audit summary and detailed audit reports, attach the organization's observations, and submit all of the documents simultaneously to the organization and the NBP.

5.1.1 Report Format

The audit report shall contain the following information.

Title Page

- Heading: National Biosolids Partnership EMS Audit Report
- Organization's name and address
- Audit team members' names and roles
- References:
  - NBP *EMS Elements*
  - Organization's environmental policy and environmental management system
    - Date issued
  - Date revised
  - Signatures of organization representative and lead auditor with date
  - Other

Body of Document

- Attendance sheets for entrance and exit meetings
- List of any final use and disposal operations included in the audit
- Pre-audit document review summary
  - List of documents reviewed citing any strengths and weaknesses
  - List of requirements for documentation taken from *EMS Elements* along with references to relevant organization documents that meet each of the requirements
- Findings sheets indicating areas of strengths and weaknesses, outcomes

examined, and any nonconformances with the requirements as identified in the *EMS Elements*, including a description of the nonconformance and if major or minor

- Auditors' recommendation regarding NBP program verification

5.1.2 Notification of Change

When an organization makes a significant change to its EMS or biosolids management activities after having received EMS verification, the auditor shall expect to receive written notification from the organization about the change(s). The auditor shall then need to make a determination if the nature of the change(s) warrants additional audit activity prior to the next scheduled interim or verification audit. Auditors shall also note that organizations that have received NBP EMS verification may voluntarily request additional audit activity in response to such situations as a change in EMS and/or biosolids management activities or public concerns about the validity of its EMS verification.

5.1.3 Maintaining Verification Status

To retain program participant / verification status, an organization must meet the following criteria.

- Reporting - Consistent with EMS Elements 9 and 15, program participants must make available to the public their annual Biosolids Management Program Performance Report and a detailed report of the independent, third party EMS verification audit results. The Biosolids Management Program Performance Reports must contain the following: summaries of monitoring, measurements, and other results that demonstrate the performance of the biosolids program relative to its goals, objectives, and legal requirements; summaries of performance relative to other voluntary adopted requirements; the organization's progress toward achieving its biosolids program goals and objectives; and a summary of the independent third party EMS verification audit results. In essence, not only will failure to meet these reporting requirements constitute a major nonconformance of the EMS, it will constitute a basis for immediate termination of program participation.

- EMS Conformance - Program participants must maintain conformance of their EMS with the EMS Elements, as demonstrated through the audit process.

Rather than identify an exhaustive list of criteria or situations that could lead to the exit of program participants, the NBP's Management Committee has the discretion to remove program participants to address unforeseen or extraordinary circumstances. Some environmental verification initiatives have established criteria requiring that organizations found guilty of committing an environmental crime be immediately removed from the program. However, rather than attempting to define specific criteria such as these or others, the NBP Management Committee will make determinations on an as needed basis about whether conditions at or action undertaken by a biosolids organization risk undermining the credibility of the NBP EMS Program and therefore justify the participant's removal.

5.2 NBP EMS Program Designation

Those organizations that successfully complete the third party audit and receive verification are granted permission to use the NBP EMS program designation in the form of a designation statement and visual indication of verification (label or seal) in the following specific places.

- Signs in front of facilities
- Signs at the perimeter of land application sites
- Signs on tucks transporting biosolids
- Plaques or certificates of participation displayed at facilities
- Facilities letterhead
- Rate Payer newsletters or notices
- Web sites
- Written, educational, or informative materials

If a NBP EMS Program participant identifies and requests a new place to apply the program designation that is not on the identified list, the NBP Management Committee will address these on a case-by-case basis with recommendations from the EMS Appeals Board.

The program designation must not be used as a biosolids product label. The NBP believes that allowing a program designation label or sign directly in or on biosolids material could be misleading to the public who might believe that the label is an indicator of independently tested and certified product quality rather than of a material that emerges from a certified management system. The program designation may not be used on a bagged biosolids product, or on signs in contact with piles of or land applied biosolids material. Signs that are nearby, but not actually touching the biosolids material in storage piles or on land application sites (e.g., at the perimeter or land application sites) that are under the management of the organization's EMS would be permissible. The designation statements below have been prepared to provide that clarity.

The NBP does allow all verified program participants to used the program designation at all management points and associated infrastructure along the entire biosolids value chain and their span of control covered by the EMS. Trucks hauling biosolids material covered under the participant's EMS are a management point under the EMS (i.e., transportation is identified as a critical control point in the *National Manual of Good Practice*) and are acceptable places for the NBP program designation. Consistent with this approach, the program designation cannot be used at management points or on infrastructure/ vehicles that are not under the purview of the participant's biosolids EMS (e.g., the truck of an exceptional quality compost product retailer not covered by a participant's EMS.)

The program designation will clearly state that it is an indicator of EMS verification and completely avoid any implication that it is an indicator of product quality testing. The NBP allows program participants to use two types of program designation statements, a short statement and a long statement. The short statement can be displayed by verified program participants, in the approve places listed above, by itself or accompanying the visual indication of verification. The long statement describes what is behind the visual indicator or seal.

Short Statement:
"This organization (*or insert name*) operates an independently certified National Biosolids Partnership environmental management system."

Long Statement:
"This organization (*or insert name*) has been independently certified as having an effective biosolids environmental management system that supports continually improving environmental performance, meeting regulatory compliance obligations, utilizing good management practices, and creating meaningful opportunities for public participation and is in conformance with the requirements of the National Biosolids Partnership.

5.3 EMS Verification Appeals Process and Board

The NBP EMS Program provides an independent appeals process for those organizations that would like to question their verification status. Organizations who appeal an interim or re-verification audit and have previously obtained verification status shall retain their verification status until the appeal has been resolved. The verification appeals process involves the EMS Appeals Board, representing a balance of biosolids management interested parties and wastewater industry professionals. This appeals process is designed to make organizations that wish to participate in the program more comfortable with the auditor's role in interpreting the auditable requirements that allow for tailoring to local circumstances.

The following is a list of functions for the EMS Appeals Board.

- **Appeals Decisions** - The Board evaluates and makes final determinations on appeals actions. This function supports the ability of audited biosolids organizations, or other interested parties, to question, and derive a Board determination on, the verification decisions made by the independent third party audit organization. Final appeals determinations must be made by a majority of the Board.

  To warrant an appeals action before the Board, the party bringing an appeal of an individual verification decision must set forth the specific EMS element(s) that they contend have not been evaluated and/or implemented consistent with NBP expectations and requirements as reflected in the EMS Elements, along with the objective evidence to support that claim.

  When presented with a request for an appeals action, the Board may:
  - request further information from the biosolids organization, interested parties, and/or the auditor(s);
  - request appearances by the relevant parties, in person or by phone;
  - conduct further investigations; and/or
  - deny the appeal without any of the above actions if the application for appeal (a) concerns claims other than the verification or evaluation of a participant's biosolids organization's EMS or (b) on its face, lacks sufficient objective evidence to support the claim.

  A Board "determination" will take the form of a conclusive statement that the identified EMS deficiency does or does not represent a major non-conformance as defined in the Auditor Guidance and in the context of the NBP expectations and requirements as contained in the EMS Elements. The Board will direct its determination to the audit company for follow-up action. In the case of an appeal of a verification denial, a finding that the EMS deficiency does not represent a major non-conformance will result in the biosolids

organization's verification to the NBP program. As would have been the case in the absence of such an appeal, a finding that the EMS deficiency does represent a major non-conformance will require the biosolids organization to address the deficiency prior to verification. In the case of an appeal questioning the issuance and/or maintenance of a verification, a Board finding that a major non-conformance does exist, will require the audit company and the biosolids organization to address the EMS deficiency in conformance with the procedures and time frames contained in the Auditor Guidance. As would have been the case in the absence of an appeal, a Board finding that the EMS deficiency does not represent a major non-conformance will result in the biosolids organization's unconditional maintenance of its NBP verification.

- **Program Evaluation and Guidance** - The NBP staff will prepare an overall NBP EMS Program evaluation approximately every two years. The Board makes recommendations to the NBP on the evaluation design and scope, and review the program evaluation prepared by the staff. As well, the Board reviews and makes recommendations on NBP EMS Program policies, as necessary. Finally, the Board receives and reviews program status reports, prepared by NBP staff. These reports will include information such as the number of new verified participants, the number of new applications received, and participants that are addressing identified major nonconformances.

With the exception of appeals actions, the independent, third party audit organization will make final verification determinations. The above text is designed to make clear that the Board does not verify or deverify a biosolids organization to the program (only the independent audit companies and, in extreme cases, the NBP Management Committee, perform that function), but rather concludes whether or not an EMS deficiency under consideration constitutes a major non-conformance thereby either postponing verification until addressed or requiring improvement consistent with Auditor Guidance procedures and time frames to maintain an existing verification.

Composition of the Board

The EMS Appeals Board provides access to the perspective and enhances the credibility for the NBP Program with a diverse range of interested parties. The Board represents a balance of biosolids management interested parties and wastewater industry professionals. The Board is composed of the following representatives.

- Four (4) representatives from within the biosolids industry:
  - At least one of the industry representatives on the Board should have experience with implementing and/or operating an EMS; and
  - For the initial Board, at least one of the members should have been involved with the development of the NBP's EMS Program and blueprint documents (e.g., *Manual of Good Practice, Biosolids EMS Guidance Manual, EMS Elements*, and *Auditor Guidance*).
- Five (5) individuals from interested parties, such as the following (not necessarily one from each type):
  - Environmental and Community Organizations;
  - Public Health Organizations;
  - State and Federal Regulatory Agencies;
  - Academia;

- Food, Agriculture, and Timber Industries; and
- Others..

Appointment of the Board

- Initial Nominations and Appointments - Based on nominations solicited from a variety of sources, the Management Committee has made the appointments to establish the initial Board.

- Terms - Representatives serve for three (3) years. To prevent complete Board turnover, the initial nominations consist of two- and three-year terms (50% each).

- Nominations - The EMS Appeals Board presents nominations for new Board members to the NBP Management Committee.

- Appointments - After careful review of the recommendations from the existing EMS Appeals Board, the NBP Management Committee appoints all new members of the Board. The Management Committee retains control over Board membership and could, if it believed necessary, ask for Board member resignations.

Board Meetings

The Board meets on an as-needed basis to handle appeals actions. To ensure Board cohesion, at least one (1) Board meeting per year will be face-to-face. The other meetings are likely be conference calls. However, the Board determines, on a case-by-case basis, if any of the other meetings necessitate face-to-face interaction.

Board Staffing

The Board utilizes NBP staff to provide the required level of administrative and technical support, including the following functions:

- travel and logistics coordination for Board meetings;
- administrative and communications for Board operations; and
- background review for appeals actions.

The NBP staff is also responsible for preparing regular program status reports and a biannual program evaluation.

The NBP staff provides for the acceptance and compilation of comments and perspectives from interested parties about the EMS Program as a whole. The NBP staff would provide the compilation to the NBP Management Committee and the EMS Appeals Board.

5.4 Interim Audits

Most EMS verification programs have a pattern of regular verification, interim, and re-verification audits. Verification programs include regular, on-site visits in the form of "partial audits" (usually referred to as maintenance or interim audits) between full verification audits to ensure EMS stability. Because of the ability for staff, policies, and procedures at organizations to change rapidly, interim audits are common practice for verification programs, unless a short re-verification cycle is in place (e.g., full verification audits happen every year or every other year). Because interim audits only look at a part of the EMS, they are typically less resource intensive than full verification audits.

To provide program credibility, annual, interim audits conducted on-site by the independent, third party auditor must occur between re-verification. Interim audits focus on ensuring "system health" (i.e., that the system is doing what it is supposed to) in between verification audits. Individual interim audits cover only a portion of the EMS and include a check on the organization's progress toward goals and objectives. However, over the course of the five years of interim audits (between verification audits), the entire EMS must be covered by the third party auditors. Interim audits also include an examination of the management review process, corrective action requests and responses, and preventive action requests.

Organizations may choose to substitute internal, interim audits for third party, interim audits in years two and four of the 5-year audit cycle, provided the results of the internal audits are fully publicly disclosed and the independent, third party audit is not needed to ensure proper system functioning and health. During years in which a organization chooses to substitute internal, interim audits for third party audits the organization must self-verify system conformance with the *EMS Elements* by providing the NBP with a signed self-verification statement. This option to substitute internal audits is designed to reduce the burden on staff resources, and lower overall audit costs.

Substituting the third party, interim audits in years two and four with internal, interim audits shall be based on system performance from the previous audit. Thus, the third party auditor may require a third party, interim audit if system performance in the previous audit indicated a need for a re-visit the following year. The need for interim audits shall be discussed by the organization and the auditor during the audit planning meeting at the beginning of the verification cycle, as well as at each interim audit. Thus, the organization shall always know in advance if a third party, interim audit shall need to be conducted during the coming year.

5.5 EMS Re-Verification Audits

Re-verification audits shall occur every five years and are the same as the initial verification audit.

CHAPTER 6: EMS Verification Audit Guidance - Policy

Chapter 6 includes elements related to the *Biosolids EMS Guidance Manual* and the biosolids management policy.

Element 1. Documentation of EMS for Biosolids

Element 1 describes the NBP requirements for preparing and maintaining an EMS Manual. The EMS Manual is a framework for documenting and organizing the pieces of an EMS for Biosolids.

Minimum Conformance Requirements

1.1 Document the EMS for Biosolids in an EMS Manual or equivalent set of program documents that describe, at least at a general level, the applicable policies, programs, plans, procedures, and management practices in the EMS.

1.2 Approve the EMS Manual by a level of the organization's management with the authority to commit people and resources to biosolids management activities.

1.3 Contain, in the EMS Manual, the organization's Biosolids Management Policy and EMS Procedures required by the *EMS Elements.*

1.4 Contain or cross-reference, in the EMS Manual, public participation, communications, and emergency preparedness and response programs and plans required by the *EMS Elements.*

1.5 Cover, in the EMS Manual, all applicable, relevant, and selected critical control points for biosolids management activities throughout the biosolids value chain.

1.6 In the EMS Manual, include or cross-reference all operational controls, procedures, processes, and other management methods used to achieve and maintain compliance with legal and other requirements.

1.7 In the EMS Manual, describe those biosolids management activities assigned to and performed by contractors.

Element 2. Biosolids Management Policy

Element 2 addresses the importance for an organization to articulate and communicate clearly its vision for how the organization will conduct all of its activities. An organization's biosolids management policy establishes the guiding principles for the organization's environmental management systems and operations. The goals and objectives, biosolids management program, procedures and work practices, monitoring and measurement, internal auditing, and performance reporting should all align to support the organization's efforts to meet the commitments and apply the principles established in its policy. As part of its National EMS Initiative, the National Biosolids Partnership has established the *Code of Good Practice*. Organizations seeking NBP EMS verification must commit to following the 10 principles of conduct set forth in the *Code of Good Practice* and may include other biosolids commitments that the organization voluntarily chooses to adopt.

Minimum Conformance Requirements

2.1 Establish a Biosolids Management Policy that commits the organization to following the principles of conduct set forth in the *Code of Good Practice* and may include other biosolids commitments the organization voluntarily chooses to adopt.

2.2 Communicate the policy to employees, contractors, and all interested parties.

2.3 Incorporate the policy into the organization's biosolids programs, procedures, and practices.

CHAPTER 7: EMS Verification Audit Guidance - Planning

Chapter 7 includes the auditor guidance associated with the EMS planning elements. Element 3 addresses requirements related to the identification of critical control points in the biosolids value chain. Element 4 focuses on the legal and other requirements that govern various activities along the biosolids value chain. Element 5 outlines requirements for establishing goals and objectives to ensure that an organization's biosolids management activities continually improve. Element 6 discusses requirements associated with public participation in an organization's Biosolids Management Program and EMS planning process. Requirements under each of these elements help to ensure that an organization is proactive and thorough in its biosolids management activities. Proper planning enables an organization to anticipate and manage potential and actual environmental, health, and safety impacts that may be associated with biosolids management activities.

Element 3. Critical Control Points

The identification of critical control points along an organization's biosolids value chain is fundamental to the effective operations of an EMS for Biosolids. By identifying critical control points, and associated environmental impacts, an organization can plan and implement proactive steps - operational controls - to assure that desired biosolids material characteristics are consistent with intended/actual final use and/or disposal and to manage or mitigate the environmental impacts associated with these locations or activities. Requirements under Element 3 ensure that an organization has processes in place to identify and document information related to its critical control points for biosolids management.

Minimum Conformance Requirements

3.1 Identify and document the critical control points of the organization's biosolids management activities throughout the biosolids value chain, consistent with those identified in the *National Manual of Good Practice* and other authoritative sources.

3.2 Identify potential or actual environmental impacts at each critical control point.

3.3 Keep up to date information on the organization's critical control points.

3.4 Maintain records that link each critical control point and its potential environmental impacts with the corresponding operational controls.

3.5 For organizations that have successfully completed a third party verification audit, provide notification to the NBP (and assigned third-party verification auditor) following any operational change that requires a change to the identified critical control points or environmental impacts associated with the critical control points.

Key Areas of Interpretation

Requirement 3.1 states that critical control points identified by biosolids organizations shall be "consistent with those identified in the *National Manual of Good Practice* and other authoritative sources". Auditors should interpret "consistent" to mean two things. First, this means that the critical control points identified by the organization should be *similar in scope and scale* to those identified in the *National Manual of Good Practice*. For example, if an organization were to identify Wastewater Treatment as a critical control point, this classification would be too broad in scale and scope to allow for effective mapping and management of

environmental impacts and operational controls. Wastewater Treatment refers to an entire link in the biosolids value chain or a broad category of critical control points. To be consistent with the *National Manual of Good Practice*, the organization would instead need to dig deeper within Wastewater Treatment to identify specific locations or activities - such as anaerobic digestion, air drying systems, or solids dewatering.

Second, this requires that the biosolids organization identify and document *all* applicable critical control points in the organization's biosolids management activities and value chain. Failure to identify a complete range of critical control points may result in a failure to institute appropriate operational controls that are important for meeting legal, quality, and public acceptance requirements of the organization's biosolids. Auditors need to understand, however, that biosolids management activities and wastewater treatment operations vary from one facility to another and NBP program participants will need to tailor the list of critical control points throughout the biosolids value chain (pretreatment and collection through final use or disposal) to include those that are relevant to their specific operations. Thus, auditors should expect that the identified critical control points will vary from one facility to another and that not all critical control points identified in the *National Manual of Good Practice* will be applicable to each organization. For example, utilities throughout the country employ a variety of methods for stabilizing biosolids, such as aerobic digestion, anaerobic digestion, or chemical stabilization. Likely, only one of these critical control points applies to a single facility (although participating organizations may have more than one facility and possibly of different types). To assess critical control point completeness, auditors should consider:

- the intended/actual final use or disposal of biosolids and associated legal requirements;
- the organizations desired biosolids material characteristics; and
- the nature of the processes utilized to produce biosolids material.

While the NBP expects that participating organizations will identify critical control points that are consistent with those defined in the *National Manual of Good Practice*, an organization may have good reason due to local circumstances for identifying critical control points that are either not addressed in the *National Manual of Good Practice* or not wholly consistent with the Manual's specification of critical control points. For example, an organization may choose to experiment with new technology or equipment, not covered in the *National Manual of Good Practice*. In these cases, to meet the requirement of "consistent with the *National Manual of Good Practice"*, the NBP expects the organization to provide the auditor with the rationale for diverging from the critical control points identified in the Manual. Based on the rationale and using the auditor's best judgment, the auditor will then need to determine whether the critical control points identified by the organization are adequate to ensure that the biosolids management activities meet legal, quality, and public acceptance requirements and do not have undesirable environmental impacts.

The NBP believes that in selecting critical control points to ensure that the biosolids management activities meet public acceptance requirements, organizations should be attentive to interested party input. This attentiveness to interested party input may, at times, drive an organization to select critical control points beyond those that they associate strictly with the biosolids value chain. For example, an organization that generates untreated solids at one site and trucks them to another facility for processing into biosolids may select, based on regulatory and quality requirements, critical control points associated with trucking and solids testing. However, based on public acceptance requirements and input from interested parties, they organization may also select critical control points associated with odor control.

The NBP expects that biosolids organizations may identify critical control points (and associated operational controls) that are not specifically addressed in the *National Manual of Good Practice*, but are instead drawn from

"other authoritative sources". Examples of other authoritative sources include publications and guidance manuals from the U.S. Environmental Protection Agency and Water Environment Federation.

Requirement 3.5 states that organizations that have successfully completed a third party verification audit must provide notification to the NBP (and assigned third-party verification auditor) following any operational change that requires a change to the identified critical control points or environmental impacts associated with the critical control points. An indication that such a notification is likely warranted include would include changes to an NPDES permit or changes to operations that require notification of a regulatory agency.

Element 4. Legal and Other Requirements

To ensure that it is operating in compliance with all applicable legal and other requirements, the NBP believes that an organization must have an effective process for identifying, tracking, and updating applicable regulatory and other requirements. Applicable requirements help define the boundaries that govern an organization's activities, while the organization's Biosolids EMS provides a systematic mechanism for ensuring that the behaviors and activities operate within these boundaries.

While Element 4 ensures that an organization has appropriate processes to understand its applicable requirements, other elements require the organization to implement controls to maintain and measure compliance with these requirements. Compliance with applicable legal and other requirements is a central component of the *Code of Good Practice* (To commit to compliance with all applicable federal, state, and local requirements regarding production at the wastewater treatment facility, and management, transportation, storage, and use or disposal of biosolids away from the facility), which all organizations seeking NBP EMS verification must commit to in their EMS policy, and is consistent with the NBP's belief that "outcomes matter".

Minimum Conformance Requirements

4.1 Establish a procedure for identifying and tracking legal (federal, state, and local) and other requirements applicable to its biosolids management activities.

4.2 Establish and maintain records of applicable legal and other requirements.

4.3 Include a management process for incorporating changes and new requirements into the elements of the EMS.

Key Areas of Interpretation

The implementation aspect of "establish" should be interpreted to mean that the procedure for identifying and tracking requirements should be in place and operating effectively as intended (e.g., all applicable requirements are identified and documented). This means that the auditor will need to investigate whether the activities described in the procedure are actually occurring. To assess implementation of the procedure, the auditor will need to be familiar with the important legal and other requirements that are likely to affect biosolids operations.

Legal requirements refer to "federal, state, and local environmental laws and regulations that are applicable to an organization's biosolids management program activities". Auditors should be very familiar with the major legal requirements that affect various activities in the biosolids value chain. Auditors should note, however, that wastewater treatment operations are subject to a wide array of regulatory requirements, many of which do not apply to biosolids material production. Although participants may choose to incorporate or reference such

requirements in their EMS for biosolids, the NBP does not require or expect this to take place. Typically, legal and other requirements applicable to biosolids management in the wastewater/solids treatment process will involve ensuring the material reflects characteristics consistent with the intended final use or disposal (e.g., digester time/temperature requirements for pathogen levels). Auditors should refer to the *Manual of Good Practice* for summary information on regulatory requirements specifically associated with biosolids management. For example, Chapter 3 summarizes requirements for land application associated with the 40 CFR Part 503 Rule.

Element 5. Goals and Objectives for Continual Improvement

The periodic establishment and review of EMS goals and objectives drives and guides an organization's continual improvement efforts by defining the specific aspects of the organization's EMS or biosolids management performance that the organization and its various s interested parties desire to target. Goals and objectives enable the organization to target resources and efforts to maximize the beneficial results. The NBP *EMS Guidance Manual* provides extensive detail to guide biosolids organizations in the establishment and tracking of goals and objectives for biosolids management.

Minimum Conformance Requirements

5.1 Establish and periodically review measurable biosolids program goals and objectives for biosolids management activities.

5.2 Reflect, in program goals and objectives, identified priorities for improving environmental performance of biosolids management activities based on critical control points, identified or potential environmental impacts, legal and other requirements, and applicable best management practices as defined in the *National Manual of Good Practice* and various authoritative sources on biosolids management (e.g., Water Environment Federation Manuals of Practice).

5.3 Consider, in developing program goals and objectives, input from interested parties developed through proactive public participation.

5.4 Integrate goals and objectives with other elements of the EMS and biosolids management activities.

5.5 Develop program goals and objectives using SMART criteria (I.e., be Specific, Measurable, Achievable, Relevant, and Time-bounded).

5.6 Update program goals and objectives on a regular basis.

5.7 Establish an action plan that describes those improvement activities it is pursuing to achieve biosolids program goals and objectives. Designate, in the action plan, schedules, milestones, resources, and responsibilities for achieving biosolids program goals and objectives.

Key Areas of Interpretation

Further clarification on the NBP's expectations for what it means for an organization to "consider input from interested parties" is provided under Element 6. Public Participation in Planning.

Element 6. Public Participation in Planning

Element 6 addresses the public participation requirements for the NBP EMS Program, including specific areas that must be included in the public participation approach, such as the commitment to the ten principles in the *Code of Good Practice*, as well as specific requirements for when public participation ought to happen, such as during development of EMS goals and objectives. The requirements in Element 6 are highly related to Element 9, which covers requirements for a proactive communications and public outreach program. Auditors and organizations being audited may want to consider some parts of Elements 6 and 9 together. Auditors must also note that the NBP has established certain specific expectations for how public participation outcomes should act as an indicator of EMS health. A discussion of these expectations is provided in Chapter 4, Section 4.5.6.

Minimum Conformance Requirements

6.1 Select and implement a proactive public participation approach to involve interested parties in its Biosolids Management Program and EMS planning process.

6.2 Reflect, in the selected approach, the organization's commitments to the ten principles in the *Code of Good Practice*, including a plan for independent third-party verification of conformance with the *EMS Elements.*

6.3 Select an approach that is consistent with the degree of current public interest, history of public involvement, method of biosolids management, and related local circumstances.

6.4 Provide interested parties with meaningful opportunities to express views and perspectives relative to biosolids management activities, including concerns about environmental impacts, biosolids program performance, and potential areas for improvement.

6.5 Consider input from interested parties in initially developing program goals and objectives during EMS implementation and in updating them as part of periodic review of biosolids management program performance.

Key Areas of Interpretation

Auditors should interpret a "proactive public participation approach" as one that creates avenues for interested parties, as identified by the organization , to communicate their perceptions and concerns regarding biosolids management activities near the beginning of the organization's EMS planning process (specifically in identifying environmental impacts and setting performance goals and objectives for the biosolids program) and during the periodic review of EMS program goals and objectives. A "proactive" participation approach also enables the organization to understand the needs, concerns, and perspectives of interested parties before problems arise or incidents occur.

The NBP does not require or expect that organizations will necessarily develop public participation efforts solely dedicated to EMS planning and implementation. The NBP believes it is fully acceptable that organizations utilize

existing methods (e.g., existing community advisory groups) and/or leverage already planned events (e.g., a meeting relating to planned treatment plant upgrades) to discuss their EMS planning efforts and collect information on interested party perspectives. Similarly, the NBP believes that already existing public participation initiatives can provide organizations with the awareness of interested party perspectives sufficient to develop a responsive and effective EMS. Thus, organizations have multiple options for how they demonstrate public participation efforts have provided them with the understanding to prepare their EMS. The auditor should expect that the biosolids organization has documented its approach for involving interested parties in its Biosolids Management Program and EMS planning process. The NBP expects that records of public participation activities (such as attendee lists) should exist, at a minimum, since the EMS was put in place. At the time of the first verification audit, this would be at least six months. The NBP understands that not all organizations have had a formal public participation program and records of its implementation prior to implementation of the EMS.

In addition to verifying that the organization has selected and documented a public involvement approach, the auditor will need to make a determination as to whether this approach is adequate to ensure that the organization reasonably understands the perceptions and concerns of interested parties before problem situations arise. As well, auditors shall verify that the selected public participation approach reflects the organization's plan for independent third-party verification of conformance with the *EMS Elements* (requirement 6.2). To ensure that organizations create an audit plan that will clearly reflect interested parties' perspectives, auditors shall verify that participants have notified interested parties about their intent to receive an independent third party audit and have built into their EMS planning a discussion with interested parties about approaches for observing the third party audit. The NBP believes this would provide the organization the best opportunity to manage expectations about audit results, articulate any constraints needed on audit observation, and understand how best to conduct the audit to gain maximum public acceptance of biosolids management activities. Auditors should note, however, that the NBP does not require a biosolids organization to have interested parties observe or otherwise participate directly in the independent, third party audit.

Biosolids organizations are granted significant flexibility in how they involve interested parties in their EMS planning activities. The auditor shall be familiar with the NBP's guidance on public participation in planning that is contained in the *EMS Guidance Manual* and the *National Manual of Good Practice* (Chapter 1. Public Acceptance). These publications provide specific methods, techniques, questions, and examples that can assist biosolids organizations in developing appropriate and effective public participation approaches. As implied by requirement 6.3, the auditor shall keep in mind that what constitutes an appropriate approach may vary significantly across locations, and requirement 6.3 states that the organization's approach shall be "consistent with the degree of current public interest, history of public involvement, method of biosolids management, and related local circumstances".

The auditor shall note that the organization's public participation requirements extend over the full biosolids value chain, including those biosolids management activities implemented by contractors. This means that the organization's documented public participation approach shall include information that addresses how input from interested parties is solicited and considered for activities that may be performed by contractors. In some cases, the biosolids organization may opt to have an integrated public participation process that covers public participation activities performed by contractors. If any of the organization's contractors maintain their own public participation plan(s), it is acceptable for the biosolids organization to reference the contractors' plans.

To ensure the organization's public participation approach is "consistent with the degree of current public interest, history of public involvement, method of biosolids management, and related local circumstances," the auditor shall look to see whether the organization has:

- considered the history of local support for or opposition to biosolids management practices;

- examined previous public participation methods and their effectiveness;
- considered any current interests, issues, or concerns;
- considered who is impacted or potentially impacted by the organization's biosolids management practices;
- identified who is concerned or whose opinions might be important for successful operations of the organization's biosolids management practices; and
- selected and implemented an approach consistent with the above.

Auditors shall consider that, at a minimum, the following aspects of a public participation approach may change based on local conditions.

- Format. For example, where there is substantial public interest, the organization may need to provide a large venue forum where many members of the public can participate. On the other hand, organizations that find there is interest among only some specific parties may want to provide more focused opportunities for public participation, such as advisory or focus groups. Multiple formats and opportunities are likely to be appropriate for many organizations. The NBP's *EMS Guidance Manual* provides examples of various public participation mechanisms.
- Frequency. Where there is significant public interest, the organization would likely have public involvement activities more frequently than where there is not. Where there is low public concern or interest, the organization may want to have open ended opportunities available on a regular basis (e.g., site tours and public complain/inquiry hotlines), and less frequent, formal public participation events.
- Public Involvement. In instances where there is broad-based public interest or concern, the organization could provide opportunities to involve the public at large. Where there is concern or interest among specific parties and less among the broader public, the organization could sponsor public participation activities that involve those specific parties (e.g., farmers whose fields have biosolids applied, or communities potentially impacted by truck traffic).

If a less active public participation approach has been selected (e.g., one where the organization is proactively prepared, but engages only as needed), the organization must provide evidence that other approaches were considered and that all interested parties and potential concerns/perspectives have been identified. Selection of a less active public participation approach will not necessitate a finding of a nonconformance, however, the organization shall be prepared to document for the auditor why a less active approach was selected.

The auditor shall interpret "meaningful opportunities" to mean that the organization has established mechanisms (more than one) that allow for interested parties to communicate their perspectives, views, and concerns regarding biosolids management activities to the organization. To be considered a "meaningful opportunity", the method must meet the following criteria:

- identified interested parties have been provided a method for input consistent with their location and capacity to comment (e.g., if interested parties are located in a rural area with limited or no internet access, opportunities to express views and perspectives should not be limited to email or web site access);
- efforts have been made to alert potential interested parties about the opportunity to provide comment;

- time has been provided to enable interested parties to participate, formulate, and deliver substantive input; and
- background information (e.g., information on the organization's general EMS implementation plans, commitment to the *Code of Good Practice* and third party verification process) has been provided to interested parties to enable them to understand the EMS planning process and formulate substantive input.

"Input from interested parties" shall be interpreted to include both written comments (e.g., letters, completed surveys) from the public and interested parties as well as verbal comments made during meetings and other methods organized by or on behalf of the biosolids organization. As stated earlier, the organization can obtain this input either through public participation efforts dedicated to EMS planning and implementation or through other existing or newly developed efforts that can include as a component discussion of the biosolids EMS.

The auditor shall interpret "consider" to mean that the organization has acknowledged and responded to all interested party input. Consistent with the NBP's assertion that "outcomes matter", there are three acceptable responses to public comments. First, the organization may decide to directly address public input by implementing measures designed to resolve issues related to an area of public comment. For example, the organization might modify practices or alter equipment or processes. Second, the organization may decide to establish goals and objectives that focus organizational attention on addressing identified issues over a defined time horizon. Third, the organization may decide not to directly address a certain issue raised by public input due to technical, financial, or other constraints. In such cases, the organization is expected to document, and communicate to interested parties, its rationale for making this determination, and, where possible, to suggest alternate steps to address (or partially address) the interested party input. Although the NBP does consider this third option for response to interested party comments acceptable, a pattern of not addressing concerns or issues raised by interested parties should be viewed by an auditor as a potential failure to achieve NBP public acceptance objectives and the organization's commitment to continual improvement. As such, auditors should consider such patterns may be an indicator of EMS health problems. In this context, however, the NBP requires auditors to remain attentive to the possibility that prior efforts that have addressed interested party input may leave a biosolids organization with a pattern of on-going, residual concerns. In such cases, auditors should factor the organization's prior attentiveness to interested party input into their system health evaluation. Auditors should expect, however, that biosolids organizations will continue to have ongoing, two-way communications with interested parties about such residual concerns.

The NBP expects that the organization can demonstrate that it actually acknowledges and responds to the interested party input. At a minimum, "consider input" means that:

- views and perspectives have been captured by a process that ensures management is fully aware of interests, needs, and concerns of interested parties as critical control points are identified and objectives and goals are set; and
- responses to public comments have been formulated, documented, and communicated back to relevant interested parties by the biosolids organization.

Auditors shall recognize that the biosolids organization retains full control over management and decision making, and it is not obligated to implement measures to resolve all public concerns. Auditors shall factor into their assessment that there can always be some parties who are not satisfied that their concerns have been addressed or parties who are fundamentally opposed to certain biosolids management practices, regardless of the organization's environmental performance or how active and meaningful the public participation effort has been.

When contractors are responsible for implementing some or all of the public participation approach, the NBP expects that the organization has included in their EMS a process for obtaining the information gathered by contractors. This process is fundamental to the organization being able to "consider" input from interested parties.

CHAPTER 8: EMS Verification Audit Guidance - Implementation

After the planning process is complete, the next step is implementing the systems improvement systems. This chapter describes roles/responsibilities (Element 7), training needed to provide necessary skills and knowledge of EMS standards (Element 8), communication tools (Element 9), standard procedures (Element 10), and practices for normal and abnormal situations (Element 11&12).

Element 7. Roles and Responsibilities

Element 7 describes requirements with respect to employee roles and responsibilities for performing biosolids management activities and EMS functions. Element 7 does not dictate what those roles and responsibilities are, but rather that they be defined and documented, and that management provide the resources necessary to implement them.

Minimum Conformance Requirements

7.1 Establish and maintain records of the assigned roles and responsibilities for the biosolids management program and activities. These records shall define and document roles and responsibilities of employees for performing biosolids management activities and EMS functions.

7.2 Appoint an individual with overall responsibility for ensuring that biosolids management program and EMS are implemented and maintained.

7.3 Provide the human, technical, and financial resources necessary to effectively execute these responsibilities.

7.4 Define and document the roles and responsibilities of contractors retained to perform various biosolids management activities and EMS functions through Service Agreements.

Key Areas of Interpretation

In requirement 7.3 “human resources necessary” means that training and qualifications are commensurate and consistent with their assigned roles and responsibilities of employees, as reflected in their job descriptions.

“Technical resources necessary” means that the necessary equipment and tools are provided.

“Financial resources necessary” means that funds are allocated, consistent with the outcome of an evaluative process to ascertain the resources necessary to support effective EMS implementation. The auditor will not verify whether or not allocated funds are deemed sufficient, but will verify that the organization used an evaluative process to determine the resources necessary and then provided a level of financial resources consistent with that evaluation.

“Effectively execute” means that biosolids management activities are producing biosolids materials that are in compliance with all legal and other requirements and meet other identified, desirable characteristics (e.g., a organization might identify “no visible plastics” as a desirable characteristic based on customer requirements or selected final use). It also means that the EMS has been implemented and updated as necessary.

Element 8. Training

Element 8 describes training requirements to ensure that biosolids management activities are being performed by competent and qualified employees and contractors.

Minimum Conformance Requirements

8.1 Establish and maintain a training program to ensure that employees responsible for specific biosolids management activities and for the implementation of various EMS functions are competent in performing their assigned tasks and duties. The training program shall provide general awareness of the EMS and how each employee's assigned roles and responsibilities relate to the entire biosolids value chain.

8.2 Include in the training program new or reassigned employees.

8.3 Maintain records of individual employee training delivered and completed.

8.4 Require that contractors establish their own training programs consistent with their roles and responsibilities in biosolids management activities as defined through Service Agreements.

Element 9. Communications

The NBP believes that publicly accepted biosolids management hinges upon the presence of effective information flows between the biosolids organization and interested parties. Access to information about biosolids management activities can significantly reduce public perceptions of risk. At the same time, employees and contractors need certain information to perform their jobs in a safe and environmentally sound manner. Element 9 defines the EMS program requirements for internal communications to employees and contractors, as well as external communications to interested parties.

Minimum Conformance Requirements

9.1 Establish and maintain a proactive Communications Program that provides ongoing information about the Biosolids Management Program and EMS to interested parties and the public, consistent with local circumstances, the method of biosolids management, public communications history, and degree of current interest in its biosolids management activities.

9.2 Include a procedure for receiving inquiries and requests for information from interested parties about its biosolids management activities and EMS. The procedure shall define a process for assuring a timely and complete response to inquiries by interested parties.

9.3 At a minimum, make the following information about the organization's biosolids management program and activities available to interested parties:

a) the Biosolids Management Policy,

b) the applicable legal and other requirements,

c) the biosolids program goals and objectives for continual improvement,

d) the periodic Biosolids Management Program Performance Report, and

e) a detailed report of the independent, third party EMS verification audit results.

9.4 Define roles and responsibilities of outside contractors in the Communications Program.

9.5 Communicate relevant information about biosolids management activities and the Biosolids Management Policy, and all seventeen (17) elements of the EMS to employees and outside contractors, consistent with assigned roles and responsibilities.

Key Areas of Interpretation

A "proactive Communications Program" is one that creates avenues for the public and interested parties to receive and/or access information about the organization's EMS, its biosolids management activities, and its biosolids management and EMS-related performance. The auditor should also expect that the Communications Program establishes quality, two-way flows of information that allows interested parties to communicate their perceptions and concerns regarding biosolids management activities. Such a "proactive" Communications Program establishes a foundation for communication with interested parties before problems arise or incidents occur. In developing a "proactive Communications Program" that provides a "timely response" to inquiries or requests for information, the NBP expects that the organization would have identified and contacted the people or organizations who are likely to receive inquiries or complaints from interested parties. For example, in some cases, interested parties might direct inquiries or complaints about the organization's biosolids management program to other organizations or government agencies (e.g., local departments of health, transportation, or police).

The NBP's expectations for ensuring that the communications program is "consistent with local circumstances, the method of biosolids management, public communications history, and degree of current interest in its biosolids management activities" are identical to those under Element 6, Public Participation in Planning.

The NBP expects that the definition of a "timely response" to inquiries will depend on whether the public inquiry or request is part of an emergency situation or an inquiry pertaining to routine biosolids management activities. For emergency situations, a "timely response" could mean immediately. For routine inquiries, the NBP suggests that a "timely response" be interpreted to mean that an organization acknowledges the receipt of the request or inquiry to the originator within two business days of its receipt by the organization. The organization has flexibility to determine the most appropriate means of acknowledgment (e.g., mail, email, phone, fax). In addition, the NBP suggests that a "timely response" be interpreted to mean that a response to the inquiry or the requested information is sent to the originator within 2 weeks of initial request or inquiry. If the organization is unable to meet the suggested time frames for response, then the NBP suggests that the organization inform the request originator of this within the two week period and provide a new time frame for conveying the information requested. To the extent that an auditor observes a consistent pattern of responses outside of what is generally considered to be timely, the auditor should view this as a potential failure to establish quality flows of information with interested parties, as described under outcomes matter, and further examine the organization's EMS for potential systemic problems.

The auditor should consider a response "complete" if all requested information is provided. If the organization is unable to provide all or part of the requested information, the auditor shall expect the organization to indicate so in its response to the request originator and provide an explanation of why the information cannot be made available.

The auditor should note that the organization is required to make biosolids management information addressed under requirement 9.3 available upon request.

Element 10. Operational Control of Critical Control Points

Element 10 describes requirements associated with operational controls of critical control points. (See Element 3 for more information on critical control points.) Operational controls regulate biosolids management activities to ensure that critical control points are managed within acceptable parameters. By establishing standard operating procedures (SOPs), work practices, instrumentation and process controls, monitoring programs, and other operational controls, a biosolids organization can ensure that operations consistently, efficiently, and effectively meet applicable legal and other requirements. Most importantly, operational controls enable an organization to eliminate or minimize negative environmental impacts and maximize the benefits delivered to the community from the biosolids program.

Minimum Conformance Requirements

10.1 Develop and implement standard operating procedures, work management practices or other appropriate methods at all critical control points throughout the biosolids value chain to effectively manage potential environmental impacts.

10.2 Incorporate all legal and other adopted requirements in the operational controls of critical control points.

10.3 Consider applicable best management practices as defined in various authoritative sources on biosolids management (e.g., the *National Manual of Good Practice*, Water Environment Federation Manuals of Practice, etc.).

10.4 Include appropriate preventative maintenance procedures and work management systems for maintaining equipment, instrumentation, vehicles, and other treatment technology and process control systems associated with its biosolids management activities.

10.5 Require that contractors establish their own operational controls consistent with their roles and responsibilities in biosolids management activities.

Key Areas of Interpretation

The auditor should interpret "all" to mean that one or more operational controls have been developed for each identified critical control point.

For requirement 10.3, the auditor shall interpret "consider" to mean more than that the organization has merely thought about the adoption of applicable management practices. The auditor shall expect that the organization has *actually adopted,* as applicable, management practices outlined in the *National Manual of Good Practice*, the Water Environment Federation Manuals of Practice, and/or other authoritative sources. If the organization has not adopted applicable management practices, then the organization must be able to provide a rationale for why it has selected an alternative approach for managing the relevant critical control point. As discussed under requirement 3.1, the organization may have good reasons due to local conditions or circumstances that make a certain operational control inappropriate or impractical, or that make another approach more effective. Based on this

rationale and using the auditor's best judgment, the auditor will then need to determine whether the operational controls selected by the organization are adequate to assure the biosolids management activities meet the legal, quality, and public acceptance requirements.

A biosolids organization must require its contractors to establish operational controls. In requirement 10.5, however, "require" should be interpreted to mean that the organization has done more than just contractually required a contractor to establish operational controls. The organization should also periodically check to verify that contractors have established appropriate operational controls. This interpretation is based on requirements in Element 16 that require the organization to periodically audit biosolids management activities performed by contractors. Ultimately, under the NBP's program, it is the organization, not the contractor, who is responsible for ensuring that operational controls with respect to contractor activities have been identified, documented, and implemented.

Element 11. Emergency Preparedness and Response

Element 11 defines the NBP's requirements for establishing Emergency Preparedness and Response Plans and Procedures.

Minimum Conformance Requirements

11.1 Establish and maintain Emergency Preparedness and Response Plans and Procedures to assure effective response to accidents and emergency situations associated with biosolids management activities.

11.2 Review and evaluate the effectiveness of emergency preparedness and response procedures, including communications systems, and revise then as necessary.

11.3 Have all emergency response equipment on site or readily available within a minimum response time.

11.4 Require contractors to establish and maintain Emergency Preparedness and Response Plans and Procedures to assure effective response to accidents and emergency situations associated with biosolids management activities.

Key Areas of Interpretation

Auditors should interpret "effective response" to mean that plans have been built around response to "worst case" scenarios with no ecological or human consequences. This would include, for example, having a contingency plan for biosolids final use and disposal (e.g., landfill options available in the case land application options are lost).

The NBP defines "minimum response time" to mean that equipment can be utilized in an emergency situation to avoid or minimize the effect on human health and the environment. As well, the NBP expects that organizations shall consider public acceptance considerations (such as biosolids spills on local roadways) in determining response times for emergency equipment. The NBP expects that organizations would have personal safety equipment (such as fire prevention or eyewash capability) located on the job site. Equipment that might be maintained off-site would include larger equipment, such as tractors required to clean up a biosolids spill on the roadway. The NBP expects that some organizations might have contracts in place for use of equipment in emergency situations.

Element 12. EMS Documentation and Document Control

Documentation plays an important role in an organization's EMS, helping to ensure that an organization's activities are performed in an appropriate and consistent manner. EMS documentation can also strengthen institutional memory, enabling an organization to weather staff turnover. Element 12 addresses the NBP's requirements and expectations regarding EMS documentation and document control.

Minimum Conformance Requirements

12.1 Establish and maintain documentation, documents, and records for the Biosolids Management program including the seventeen (17) elements of its EMS.

12.2 Establish and maintain document control procedures and practices to ensure that its Biosolids Management program documentation and documents are: a) available and can be easily located, b) created following established document creation protocols, c) kept up to date through periodic reviews and revision (if applicable), d) properly marked with version number, effective date(s), and references to replaced or superceded versions, and e) approved by authorized personnel.

12.3 Establish and maintain records of biosolids management activities and ensure that they are: a) available and can be easily located, and b) retained for the specified period of time.

12.4 Establish documentation, document control and record requirements for biosolids management activities conducted by its contractors in Service Agreements, and incorporate these requirements into its EMS for biosolids.

CHAPTER 9: EMS Verification Audit Guidance - Measurement and Corrective Action

This chapter discusses the EMS requirements associated with measurement and corrective action. Elements in this chapter ensure that the results of an organization's activities and performance are tracked, and that the information is used to inform and guide future activities, supporting the organization's continual improvement efforts. Elements addressed in this chapter include Monitoring and Measurement (Element 13), Nonconformances: Preventive and Corrective Action (Element 14), Biosolids Management Program Performance Report (Element 15), and Internal EMS Audit (Element 16).

Element 13. Monitoring and Measurement

Monitoring and measurement activities provide important feedback to an organization about the status of its operations and activities. When provided with appropriate data at the right time and frequency, personnel can make better informed decisions that affect biosolids management operations. In some cases, organizations are required to perform monitoring and measurement activities to satisfy regulatory or other requirements. Monitoring and measurement help organizations to ensure that performance remains within acceptable bounds, and to assess where effort and resources should be targeted.

Minimum Conformance Requirements

13.1 Establish and maintain regular monitoring and measurement procedures and practices for all biosolids management activities to assure compliance with applicable legal and other requirements, measure biosolids program performance at critical control points, and track progress toward achieving program goals and objectives.

13.2 Record monitoring and measurement results and maintain records as established in the record keeping procedures under Element 12.

13.3 Require contractors to establish and maintain regular monitoring and measurement procedures and practices for all their assigned biosolids management activities, as defined in their service agreement.

Element 14. Nonconformances: Preventive and Corrective Action

The establishment of systematic processes for preventing and responding to management system nonconformances is crucial to the effectiveness of an organization's biosolids management program. Such systems drive continual improvement and prevent problem situations from occurring and recurring. Element 14 outlines the requirements necessary to ensure that organizations are successful at preventing and correcting nonconformance situations.

Minimum Conformance Requirements

14.1 Develop and implement a procedure to investigate any noncompliance with applicable regulatory requirements and/or nonconformance with internal EMS procedures identified during routine monitoring and measurement or periodic internal EMS audits.

14.2 Develop and implement a procedure to identify the cause and take actions to correct the nonconformance.

14.3 Develop and implement a procedure to document the necessary corrective actions taken to prevent a recurrence.

14.4 Develop corrective action plans to address nonconformances identified during routine monitoring and measurement and identify the nonconformance, the root cause(s), and the corrective action being taken. In the corrective action plans, identify changes to policies, programs, plans, operational controls and monitoring/measurement procedures to prevent future nonconformances.

14.5 Establish formal corrective action plans to address finding of internal EMS audits and audits conducted by third parties. Document corrective action plans and describe what actions will be taken to address the audit findings, the individuals responsible, the estimated completion date, and required resources to develop and implement corrective and preventive action. Include recommended changes to policies, programs, plans, operational controls and monitoring/measurement procedures to prevent future nonconformances. Document these changes in the corrective action plan and in the EMS Manual and other relevant EMS documentation.

14.6 Track progress in completing the corrective actions and periodically updates to reflect completion.

Element 15. Periodic Biosolids Program and EMS Performance Report

The periodic Biosolids Program and EMS Performance Report is intended to provide interested parties with periodic information regarding the focus and status of the organization's EMS activities as well as its environmental and EMS performance

Minimum Conformance Requirements

15.1 Complete a periodic written Biosolids Management Program Performance Report (at least annually), summarizing the performance of the biosolids management program. The report shall contain appropriate summaries of monitoring, measurements and other results that demonstrate the performance of the biosolids program relative to its goals, objectives and legal requirements, including those biosolids management activities conducted by contractors. The report shall also provide summaries of performance relative to other voluntary adopted requirements, the organization's progress toward achieving its biosolids program goals and objectives, and a summary of its independent third party EMS verification audit results.

15.2 Make the periodic Biosolids Management Program Report available to the public. The organization shall have the flexibility of using other methods, including electronic methods such as a biosolids program web page, in addition to or in lieu of a written periodic performance report.

Element 16. Internal EMS Audit

Self-audits of the organization's EMS provide important feedback that supports continual improvement. The internal EMS audits are intended to enable organizations to periodically identify and address weaknesses in their biosolids management systems.

Minimum Conformance Requirements

16.1 Establish and maintain an internal audit program to periodically analyze the EMS for biosolids and determine whether it is effectively meeting its biosolids management policy, program requirements and biosolids program goals and objectives. The internal EMS audit program shall define the scope, frequency, and methodology of the audits, assign responsibility for conducting the audits and communicating their findings, and designate individuals to whom these findings are to be conveyed. The internal audit shall also evaluate the organization's performance relative to established biosolids program goals, objectives and performance measures. The internal EMS audit program shall cover all the organization's biosolids management program activities including those performed by contractors.

16.2 Report internal EMS audit results to the organization's management in a way that they can take action to make necessary modifications to the EMS and biosolids management program. The person responsible for the biosolids management program shall develop, or delegate the development of, a comprehensive corrective action plan addressing each nonconformance identified by the internal audit.

16.3 Maintain, at a minimum, the following documents and records, as applicable, relating to its audit program: a) description of audit methodology, protocol, scope, and schedule; b) identification of lead auditor(s), qualifications, and description of roles and responsibilities of auditors, management representatives, and others that may participate in, review, or be expected to act upon the audit; and c) corrective and/or preventive action plans prepared resulting from an audit, and any related changes made to policies, plans, procedures, and work practices that occur as a result of an audit's findings, evaluation, or follow-up actions.

Key Areas of Interpretation

The organization has the flexibility to define for itself what "periodically" analyzing the EMS means. However, the timing for the internal EMS audit should be coordinated with the management review cycle, such that the results of the internal EMS audit might inform the management review (especially information about performance relative to established biosolids program goals, objectives and performance measures). As well, information collected during the internal EMS audit will be needed for the creation of the periodic Biosolids Management Program Report. Thus, the "periods" for all three activities (the internal EMS audit, management review, and program report) should be coordinated. As the periodic Biosolids Management Program Performance Report must be completed "at least annually" (see Element 15), the auditor should expect that the internal EMS audit and management review might also happen annually.

CHAPTER 10: EMS Verification Audit Guidance - Management Review

This chapter addresses EMS requirements associated with periodic management reviews of progress and performance related to organization's biosolids management systems. The management review provides a mechanism for incorporating feedback related to the organization's EMS and outcomes performance into periodic EMS planning activities.

Element 17. Periodic Management Review of Performance

Element 17 describes the requirements for conducting and documenting periodic management reviews of the EMS and its performance relative to the organization's policy commitments, goals, objectives and established performance measures.

Minimum Conformance Requirements

17.1 At intervals the management determines appropriate, review the EMS and its performance relative to policy commitments, goals, objectives and established performance measures to ensure its continuing stability, adequacy and effectiveness. The management review shall address the possible need for changes to policy, the goals and objectives, the biosolids management program and other EMS elements based on internal EMS audit results, external verification EMS audits by third parties, changing circumstances, and the commitment to continual improvement. The management review shall be documented. Any changes to policies, plans, procedures and work practices that are made as a result of the review shall also be documented.

17.2 Maintain, at a minimum, the following related to its management reviews: a) schedule and scope for review; b) documentation of findings, evaluation, and follow-up actions; and c) documentation of changes to policies, plans, procedures, practices and other EMS elements that occur as a result of the management review findings, evaluation, or follow-up actions.

17.3 Assign a lead person or persons to be responsible for organizing and conducting the review.

CHAPTER 11: Examples of Nonconformance

The following examples provide guidance on how audit findings, supported by objective evidence, should be evaluated with respect to conformance and non-conformance. As stated in Chapter 4, failure to completely or adequately address the minimum requirements associated with each EMS Element shall likely constitute a finding by the auditor of a major nonconformance (see Chapters 6-10 for a list of minimum conformance requirements). In determining if a nonconformance should be categorized as major or minor, auditors shall to draw on: the key interpretation sections of the Auditor Guidance that provide clarity on the NBP's expectations; the details and context of the particular situation; and their experience in EMS auditing and wastewater treatment and/or biosolids management.

These examples of nonconformance, by design, do not comprise an exhaustive list of potential nonconformance situations and are not intended to serve as a checklist for auditors or biosolids organizations. As described in Chapter 4, the auditor shall conduct transaction tests and examine outcomes to determine that the EMS is functioning and producing desired outcomes as intended, in addition to examining that an EMS has satisfied the minimum requirements of the *EMS Elements.*

Element 1. Documentation of EMS for Biosolids

- The auditor may find that an organization's EMS Manual does not contain or cross-reference all operational controls, procedures, processes and other management methods used to achieve and maintain compliance with legal and other requirements (Requirement 1.6 states that "all" should be included or cross-referenced). The severity of this nonconformance will vary depending on the number and importance of those operational controls, procedures, processes and other management methods that are not included or cross-referenced in the EMS Manual. For example, an auditor may consider the absence of certain SOPs (such as procedures for tracking digester temperature and retention time) as more important than others (such as procedures for hand washing), depending on how fundamental they are to achieve and maintaining compliance with legal and other requirements. Therefore, the auditor shall examine the details of the situation to determine if the nonconformance raises to the level of major or minor.

Element 2. Biosolids Management Policy

- Some employees or contractors associated with the organization's biosolids-related operations, processes, and activities are not aware of the organization's Biosolids Management Policy or the principles or commitments identified in the policy, despite the organization's efforts to communicate the policy. This might indicate that the organization's policy communication efforts are not sufficiently effective.

Element 3. Critical Control Points

- The organization has identified most, but not all of the relevant critical control points in the biosolids value chain (e.g., pretreatment, treatment, stabilization, storage and transportation, final use or disposal). The auditor will reference the *National Manual of Good Practice* and utilize their understanding of the organization's biosolids management activities to discern if the missing critical control point(s) (and thus their associated environmental impacts and operational controls) are significant enough to warrant a major nonconformance under this element.

- While some actual and potential environmental impacts have been identified for each critical control point, not all environmental impacts have been sufficiently identified and documented.

- In the EMS documentation, some operational controls are not linked to critical control points.

- No rationale has been provided, verbally or in writing, to the auditor explaining why critical control points have been selected that are not consistent with the *National Manual of Good Practice* and other authoritative sources.

Element 4. Legal and Other Requirements

- Documented procedures for identifying and tracking legal and other requirements have not been fully implemented. For example, the auditor may find evidence that not all responsible individuals understand their roles or properly follow the procedure.

- The auditor observes instances of potential non-compliance that are unaddressed by the EMS either through lack of identification of a requirement or implementation of a procedure to maintain compliance and or respond to potential non-compliance.

- Gaps exist in the documentation and/or record keeping associated with one or more applicable regulatory requirements (e.g., a requirement has not been identified, no documentation exists for a requirement, or legally required records cannot be located).

- Some information on applicable requirements has not been incorporated into EMS-related documentation and activities.

Element 5. Goals and Objectives for Continual Improvement

- The goals and/or objectives do not fully support the organization's Biosolids Management Policy, the NBP *Code of Good Practice*, or another authoritative biosolids document.

- Goals and/or objectives have not be established to support continual improvement.

- Some of the organization's goals and objectives fail to meet the SMART criteria.

- The organization's action plan has not been recently updated, or it does not contain all required information (e.g., milestones, resources, responsibilities).

Element 6. Public Participation in Planning

- Some parts of the public participation plan, or specific activities conducted, have not been fully documented.

- The public participation approach has not been fully implemented as documented.

- Some of the opportunities for public participation were not meaningful, as defined in Chapter 7, or were not appropriate for all interested parties.

- Public participation activities did not provide an opportunity to provide views and perspectives on certain required areas (e.g., program performance, environmental impacts, or potential areas for improvement).

- The public participation approach is not fully consistent with the degree of current public interest, history of public involvement, method of biosolids management, and related local circumstances .

Element 7. Roles and Responsibilities

- Defined roles and responsibilities, for both employees and contractors, do not fully cover the scope of biosolids management activities and EMS functions reflected in the EMS Manual.

- The organization has provided some, but not all, of the human, technical, and financial resources necessary to effectively execute these defined responsibilities.

- Documentation of roles and responsibilities of employees or contractors is incomplete.

- Some employees or contractors are not fully aware of or do not understand their biosolids management of EMS roles and responsibilities indicating that roles and responsibilities have not been clearly defined and/or assigned.

Element 8. Training

- Training program content does not match the skills, knowledge, and awareness required to support employees roles and responsibilities. For example, some employees may not be receiving appropriate training given their assigned roles and responsibilities, indicating that the process for tracking employee training may be deficient or that the training program is not entirely consistent with employees' assigned roles and responsibilities.

- Records of individual training are incomplete or inaccurate.

- An employee or contractor is not fully aware of assigned roles and responsibilities or with biosolids management practices or operational procedures, indicating that training has been inadequate to assure employees are competent in performing their assigned tasks and duties.

Element 9. Communications

- The Communications Program is not fully consistent with local circumstances, the method of biosolids management, the organization's public communications history, and the degree of current interest in its biosolids management activities.

- The organization's Communications Program is not being fully implemented as documented or intended.

- Records for receiving, tracking, and responding to inquiries and requests for information from interested parties are incomplete or do not include sufficient information to ensure that the responses are timely and complete (e.g., tracking logs do not include dates that inquiries were received or responded to).

- Records, or the lack thereof, indicate that the organization's Communications Program fails to respond, or to respond in a timely manner, to inquiries and requests for information.

Element 10. Operational Control of Critical Control Points

- It appears that operational controls may not be sufficient to manage the actual or potential environmental or health impacts associated with *all* critical control point (Requirement 10.1 states that operational controls must be developed for "all" critical control points).

- The auditor finds evidence that, occasionally, procedures have not routinely been followed as documented.

- Some operational controls are outdated and need revision.

- An employee or contractor is occasionally not fully aware of the requirements outlined in an operational control, indicating that operational controls are not been fully implemented.

Element 11. Emergency Preparedness and Response

- Documented emergency preparedness response plans and procedures have not been fully implemented by the organization (e.g., lack of required equipment, inadequacy of training programs, absence of job site postings and procedures, lack of warning and hazard signs).

- Contractors' emergency preparedness and response plans and procedures have been established, but they have not been fully implemented.

- Some emergency response equipment is not on site or readily available.

Element 12. EMS Documentation and Document Control

- Standard operating procedures are not formatted consistently with version numbers, effective dates, and other required information, indicating the document control procedures have not been fully implemented.

- Some procedures have not been documented or that some records have not been maintained.

Element 13. Monitoring and Measurement

- Some monitoring and measurement procedures and practices are not documented or fully implemented. For example, inadequate monitoring and/or measurement practices are in place around some critical control points, or monitoring and measurement practices have not been fully implemented to track progress towards biosolids goals and objectives.

Element 14. Nonconformances: Preventive and Corrective Action

- Some corrective action plans do not include sufficient or appropriate information to prevent future nonconformances (e.g., identify changes to policies, programs, plans, operational controls and monitoring/measurement procedures to prevent future nonconformances).

- Some corrective action plans have not been updated or closed out.

- Some nonconformance investigations have not been conducted as required by the organization's procedure.

- The corrective action plans developed to address EMS audit findings do not follow the requirements established in Requirement 14.5 (i.e., Document corrective action plans and describe what actions will be taken to address the audit findings, the individuals responsible, the estimated completion date, and required resources to develop and implement corrective and preventive action. Include recommended changes to policies, programs, plans, operational controls and monitoring/measurement procedures to

prevent future nonconformances. Document these changes in the corrective action plan and in the EMS Manual and other relevant EMS documentation.).

Element 15. Periodic Biosolids Program and EMS Performance Report

- The Biosolids Management Program Report does not include all required information describing progress towards goals, objectives, and legal/other requirements, how that progress is measured.

- Summaries of monitoring, measurements, and other results are not sufficient to demonstrate performance of the biosolids program.

- The periodic Biosolids Management Program Report has not been made easily available to interested parties (e.g., it is posted on the web site but is difficult to find).

Element 16. Internal EMS Audit

- Corrective action plans have been developed for some, but not all, nonconformances identified during an internal EMS audit.

- Some records of action plans are incomplete or missing.

Element 17. Periodic Management Review of Performance

- Periodic management reviews of the EMS and its performance have occurred, but some have deviated from the planned procedure, schedule, or scope.

- Some of the necessary changes to policies, plans, procedures, and work practices identified by the management review have not been fully made or documented. The assigned leader of the management review is not fully aware of the assigned responsibilities or the procedure for implementing the management reviews.

Auditor Guidance Glossary

Biosolids – solid organic matter recovered from a wastewater treatment process and used especially as fertilizer – usually used in plural.

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 final 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 Management Program – a comprehensive program covering all aspects of the organization's biosolids activities throughout the biosolids value chain, including management processes for all critical control points in order to mitigate environmental impacts, meet legal and other requirements, and execute action plans to achieve biosolids program goals and objectives.

Biosolids Program Goal(s) – environmental performance improvement goals that are consistent with an organization's biosolids management policy to assure 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 must usually be met in order 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 in order 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 reliable in order to apply the organization's selection 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 final use or disposal 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 assure 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.

Emergency Preparedness - a structured emergency planning process to ensure that plausible emergency situations that can affect appropriate biosolids management have been identified, response plans and procedures developed, and trained emergency response personnel and equipment are available and in a state of readiness.

Emergency Response - specific emergency plans and activities that are initiated to contain an emergency situation and bring it under control so as to minimize environmental impacts.

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 *Code of Good Practice*, its Biosolids Policy, and the *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*, its Biosolids Policy, and the *EMS Elements.*

EMS Documents – various documents that collectively comprise 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/reports of biosolids management activities required by the EMS and applicable biosolids laws and regulations, including buy not limited to records/reports of monitoring, measurement, laboratory testing, inspections, operating logs, emergency response incident, 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, and/or period of time.

Environmental Impacts – any change to the environment (positive or negative) including public health, public nuisance, 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/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/private organizations interested in, involved with, or otherwise affected by the organization's biosolids management activities, including customers, farmers, regulators, and other local/state governmental officials, community residents, the media, environmental and public interest groups, university professors, and the general public.

Legal Requirements – the environmental federal, state, and local laws and regulations that are applicable to an organization's biosolids management program activities.

Measurement - a systematic method for estimating, testing, or otherwise evaluating key parameters and characteristics of an organization's biosolids management activities to determine compliance with a specific standard, regulatory or other performance requirement ,or to measure progress toward its biosolids program goals and objectives.

Monitoring - a systematic process of watching, checking, observing, inspecting, keeping track of, regulating, or otherwise controlling key parameters and characteristics of an organization's biosolids management activities to determine compliance with a specific standard, regulatory or other performance requirement, or to measure progress toward its biosolids program goals and objectives.

Nonconformance – a deviation in an organization's established Biosolids Management Policy and Environmental Management System from the *Code of Good Practice* principles and/or the requirements of the *EMS Elements.* Nonconformances include circumstances that have the potential to create a noncompliance situation or significant environmental impact.

Noncompliance – a deviation from federal, state and local laws, regulations, and other compliance requirements applicable to the organization's biosolids management activities.

Objective Evidence – policies, ordinances, procedures, manuals, inspection checklists, operating logs, annual reports, various other documents, and various records – monitoring, inspection, enforcement, training, etc., that objectively document conformance with the *EMS Elements* requirements.

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.

Organization – enterprise, authority, or institution, or part thereof, responsible for individual or a combination of, biosolids management activities.

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.

Practices - environmental management actions or techniques that are consistent with, or go beyond, regulatory requirements**.**

Performance - objective measures of practice/procedure outcomes on environmental endpoints and compliance.

Preventive Actions – specific actions and steps taken to identify, analyze, and eliminate the root causes of noncompliance(s) and nonconformance(s) and to put in place permanent solutions that will prevent a recurrence.

Procedures - replicable management system activities that support the consistent maintenance of practices and achievement of objectives**.**

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.

Requirement Verification -looks at specific EMS elements to determine if the organization's EMS satisfies the associated requirements, as defined in the *EMS Elements.*

Service Agreements - contractual or other legally binding agreements that define the roles and responsibilities of contractors and other groups supporting the organization's EMS for biosolids.

S.M.A.R.T. Criteria - Specific, Measurable, Achievable, Relevant, and Time-bounded criteria used to develop biosolids program goals and objectives.

Transaction Testing - enables auditors to assess how well various components of an organization's EMS function in practice - and how well they work together - from a broader systems perspective.