



## **NBP EMS 301 Workshop**

### **Summary Report**

**Prepared by**



September 26-27, 2006

Seattle, WA

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## INTRODUCTION

The University of Florida Center for Training, Research and Education for Environmental Occupations (UF/TREEO), in conjunction with the National Biosolids Partnership (NBP), conducted a two-day workshop September 26-27, 2006 in Seattle, Washington. This workshop was an opportunity for these agencies to interact and continue the process of developing and implementing an EMS. This workshop (EMS 301) is the third in a four course series developed by the NBP to assist the current group of utilities in developing their EMS.



To improve the implementation and public acceptance of environmentally sound biosolids management practices, the NBP has developed a voluntary EMS certification program for the biosolids industry.

The 13 agencies that are currently certified include:\*

- Orange County, California
- Madison, Wisconsin
- Los Angeles, California
- Ft. Worth, Texas
- Encina WW Authority, California
- Kent County, DE
- King County, Washington
- District of Columbia
- Butler County, Ohio
- Metro WW Reclamation, Colorado
- City of Lawrence, KS
- City of Albany, OR
- East Bay Municipal Utility, CA

\*see [www.biosolids.org](http://www.biosolids.org) for details of each facility's EMS

This report is intended to highlight some key topics covered during the workshop and serve as a summary for those either unable to attend or interested in reviewing some of the workshop's key learning objectives. It is not intended to substitute for attending nor does it present all the material that was covered in the workshop.

There were 13 attendees representing 11 utilities. The list of attendees is shown in Appendix A, page 13.

The instructional team consisted of Peter Machno, Project Manager, NBP EMS Project, Douglas Dean, Adjunct Instructor, UF/TREEO and Edward Toby, Senior Training Specialist, UF/TREEO.

The purpose of this workshop was to briefly review the key points of EMS 201 (Elements 1-10), cover Elements 11-17 and reinforce the essentials of the elements by having the attendees participate in hands-on exercises and group discussions.

Prior to attending the workshop, students were given an assignment. The assignment sheet is in Appendix D, page 19. Selected responses were requested from the class.

## **WORKSHOP STRUCTURE**

The agenda for the workshop is shown in Appendix B, page 14. The workshop was designed to maximize attendee participation. This was accomplished by breakout sessions, guided discussions and question and answer opportunities. The manual was organized with Elements 11-17 being covered in sections 3-9. The appropriate section from the Madison, Wisconsin EMS Manual was included in each section.

During the workshop, Tim Killingbeck from Clackamas County, Oregon attended, made presentations on specific elements and provided valuable input. He provided real life experiences on benefits and barriers to their EMS design and implementation.

## **OBJECTIVES**

The instructional team developed the following objectives for the workshop. The intent was for the participants to be able to accomplish these objectives over the two-day training period.

- Identify the minimum conformance requirements for Elements 11 – 17.
- Have a clear understanding of EMS status, remaining tasks and schedules.
- Streamline rather than over engineer their EMSs.
- Understand the interconnections of all 17 EMS elements and how they work as a system.

## **EMS WORKSHOP**

### **NBP/EMS Elements 1-10 Review**

#### **Element 1: EMS Manual**

Minimum Conformance Requirements:

- 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.
- Approve the EMS Manual by a level of the organization's management with the authority to commit people and resources to biosolids management activities.
- Contain, in the EMS Manual, the organization's Biosolids Management Policy and EMS Procedures required by the *EMS Elements*.
- Contain or cross-reference, in the EMS Manual, public participation, communications, and emergency preparedness and response programs and plans required by the *EMS Elements*.
- Cover, in the EMS Manual, all applicable, relevant, and selected critical control points for biosolids management activities throughout the biosolids value chain.
- 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.
- In the EMS Manual, describe these biosolids management activities assigned to and performed by contractors.

#### **Element 2: EMS Policy**

#### Minimum Conformance Requirements:

- Establish a Biosolids Management Policy that commits the organizations 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.
- Communicate the policy to employees, contractors, and all interested parties.
- Incorporate the policy into the organization's biosolids programs, procedures, and practices.

#### **Element 3 and 10: Critical Control Points and Operational Controls**

Critical Control Points (CCP) were identified as 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.

It was noted that identifying CCPs (and the related Operational Controls) along an organization's biosolids value chain is fundamental to effectively operating an EMS for Biosolids.

#### Minimum Conformance Requirements for Element 3:

- 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.
- Identify potential or actual environmental impacts at each critical control point.
- Keep up to date information on the organization's critical control points.
- Maintain records that link each critical control point and its potential environmental impacts with the corresponding operational controls.
- For organizations that have successfully completed a third party verification audit, provide notification 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.

#### Minimum Conformance Requirements for Element 10:

- Develop and implement standard operation procedures, work management practices or other appropriate methods at all critical control points throughout the biosolids value chain to effectively manage potential environmental impacts.
- Incorporate all legal and other adopted requirements in the operational controls of critical control points.
- 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.)
- Include appropriate preventative maintenance procedures and work management systems for maintaining equipment, instrumentation, vehicles, and other treatment technology and process control systems associated with it biosolids management activities.
- Require that contractors establish their own operational controls consistent with their roles and responsibilities in biosolids management activities.

#### **Element 4: Legal and Other Requirements**

Minimum Conformance Requirements:

- Establish a procedure for identifying and tracking legal (federal, state, and local) and other requirements applicable to the organization's biosolids management activities.
- Establish and maintain records of applicable legal and other requirements.
- Include a management process for incorporating changes and new requirements into the Elements of the EMS.

**Element 5: Continual Improvement – Goals and Objectives**

The training stressed that performance improvement goals and objectives link high-level principles to day-to-day processes and procedures.

Minimum Conformance Requirements:

- Establish and periodically review measurable biosolids program goals and objectives for biosolids management practices.
- 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).
- Consider, in developing program goals and objectives, input from interested parties developed through proactive public participation.
- Integrate goals and objectives with other elements of the EMS and biosolids management activities.
- Develop program goals and objectives using SMART criteria (i.e., be Specific, Measurable, Achievable, Relevant, and Time-bounded).
- Update program goals and objectives on a regular basis.
- 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.

In order to better understand the development of goals and objectives, Albany, Oregon was used as a case study. Copies of other goals and objectives as well as procedures and action plans were distributed to the class members. The class discussed these and then could use them as a guide for their own Element 5.

## **Elements 6 and 9: Public Participation and Communication**

Effective communication is essential in setting up a biosolids EMS. During the planning and implementation stages internal and external communication amongst the EMS team, the utility and interested parties are critical. As stated in the Code of Good Practice, it is crucial to the success of a biosolids EMS to have public participation.

### Minimum Conformance Requirements for Element 6:

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

### Minimum Conformance Requirements for Element 9:

- Establish and maintain a proactive Communication 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.
- 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 assuming a timely and complete response to inquiries by interested parties.
- At a minimum, make the following information about the organization's biosolids management program and activities available to interested parties:
  - The Biosolids management Policy;
  - Applicable legal and other requirements;
  - Biosolids program goals and objectives for continual improvement;
  - The periodic Biosolids Management Program Performance Report, and
  - A detailed report of the independent, third party EMS verification audit results.
- Define roles and responsibilities of outside contractors in the Communications Program.
- Communicate relevant information about biosolids management activities and the Biosolids Management Policy, and all seventeen elements of the EMS to employees and outside contractors, consistent with assigned roles and responsibilities.

## **Element 7: Roles and Responsibilities**

### Minimum Conformance Requirements:

- 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 performing biosolids management activities and EMS functions.
- Appoint an individual with overall responsibility for ensuring that biosolids management program and EMS are implemented and maintained.
  - Provide the human, technical, and financial resources necessary to effectively execute these responsibilities.
  - Define and document the roles and responsibilities of contractors retained to perform various biosolids management activities and EMS functions through Service Agreements.

### **Element 8: Training**

#### Minimum Conformance Requirements:

- 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.
- Include in the training program new or reassigned employees.
- Maintain records of individual employee training delivered and completed.
- Require that contractors establish their own training programs consistent with their roles and responsibilities in biosolids management activities as defined through Service Agreements.

*After the review of Elements 1-10, Elements 11-17 were presented via lecture, group discussion, breakout sessions and demonstration.*

### **EMS Elements 11-17**

#### **Element 11 - Emergency Preparedness and Response**

#### Minimum Conformance Requirements:

- Establish and maintain Emergency Preparedness and Response Plans and Procedures to assure effective response to accidents and emergency situations associated with biosolids management activities.
- Review and evaluate the effectiveness of emergency preparedness and response procedures, including communications systems, and revise them as necessary.
- Have all emergency response equipment on site or readily available within a minimum response time.
- 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 are:

- "Effective response" means that plans have been built around response to "worst case" scenarios with no ecological or human consequences.
- "Minimum response time" means that equipment can be utilized in an emergency situation to avoid or minimize the effect on human health and the environment.

Doug worked with Gill Bridges from Olympus Terrace in Mukilteo, Washington to assist in the development of an Emergency Response Plan for his facility. This case study was used as a guide for the class to develop an Emergency Response Plan for their facility.

### **Element 12 – Documentation/Document Control**

Minimum Conformance Requirements:

- Establish and maintain documentation, documents and records for the Biosolids Management program including the 17 elements of its EMS.
- Establish and maintain document control procedures and practices to ensure that its Biosolids Management program documentation and documents are:
  - Available and easily located
  - Created following established document creation protocols
  - Kept up to date through periodic review and revision
  - Properly marked with version number, effective date and references to replaced or superseded versions
  - Approved by authorized personnel
- Establish and maintain records of biosolids management activities and ensure that they are:
  - Available and can be easily located
  - Retained for the specified period of time
- 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.

### **Element 13 – Monitoring and Measurement**

Minimum Conformance Requirements:

- 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.
- Record monitoring and measurement results and maintain records as established in the record keeping procedures under Element 12.
- Require contractors to establish and maintain regular monitoring and measurement procedures and practices for their assigned biosolids management activities, as defined in their service agreement.

The students were asked to choose two goals and complete the worksheet shown in Appendix D, page 20.

### **Element 14 – Nonconformances: Preventive and Corrective Action**

Minimum Conformance Requirements:

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

- nonconformance.
- Develop and implement a procedure to document the necessary corrective actions taken to prevent a recurrence.
- 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.
- Establish formal corrective action plans to address finding of internal EMS audits and audits conducted by third parties
  - Document corrective action plans
  - Include recommended changes to policies, programs, plans, operational controls and monitoring/measurement procedures
  - Document changes in the corrective action plan and in the EMS Manual
- Track progress in completing the corrective actions and periodically update to reflect completion.

The exercise for this element consisted of the class identifying which elements related to the nonconformances shown in the Hypothetical Situations sheet, which is shown in Appendix D, page 21. The results are shown in Appendix D, pages 22-23. A sample Corrective and Preventative Action Plan Form was also provided, see Appendix D, page 24.

### **Element 15 – Program and EMS Performance Report**

Minimum Conformance Requirements:

- Complete a periodic written Biosolids Management Program Performance Report (at least annually)
  - Summarize the performance of the biosolids management program
  - Include summaries of monitoring, measurement and other results that demonstrate the performance of the biosolids program relative to its goals, objectives and legal requirements
  - Include those biosolids 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.

Key areas of interpretation are:

- “A periodic written biosolids management program performance report (at least annually)” means that organizations should prepare and make publicly available such a report every 12 months.
- Failure to prepare the BMP performance report and make it available to the public at least annually would constitute a finding of nonconformance for all other interim and re-verification audits.
- Auditors should interpret the requirements for the annual performance report to “include a summary of the EMS verification audit results” to mean that the annual performance report should include a summary of the most recent third party audit results, whether that audit was an interim audit or a full verification audit.

Using the same Hypothetical Situations sheet, the class was asked to outline the basic information that

would be included in a professional report.

### **Element 16 – Internal EMS Audit**

Minimum Conformance Requirements:

- 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 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.
- 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.
- Maintain at a minimum the following documents and records, as applicable, relating to its audit program
  - Description of audit methodology, protocol, scope and schedule
  - Identification of lead auditor(s), qualifications and description of roles and responsibilities of the auditors, management representatives and others that may participate in, review or be expected to act upon the audit
  - 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 are:

- The organization has the flexibility to define for itself what “periodically” analyzing the EMS means.

Course 401 deals with all phases of internal and external third party audits. Element 16 focused on the Madison, Wisconsin Internal EMS Audit in which five key areas were addressed as well as the summary of Audit Recommendations and Responses see Appendix D, page 26.

### **Element 17 – Management Review**

Minimum Conformance Requirements:

- 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, goals and objectives, the biosolids management program and other EMS elements based on internal EMS results, external verification EMS audits by third parties, changing circumstances and the commitment to continual improvement.

- Any changes to policies, plans, procedures and work practices that are made as a result of the review shall also be documented.
- Maintain at a minimum, the following:
  - A schedule and scope for review
  - Documentation of findings, evaluation and follow up actions
  - 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
- Assign a lead person or persons to be responsible for organizing and conducting the review.

The class addressed the three scenarios as shown in Appendix D page 25. An approach was developed for each scenario for planning a management review.

We appreciate the willingness of Olympus and Albany to allow us to use their facilities as case studies.

## **SUMMARY AND RECOMMENDATIONS**

Participants are invited to share their thoughts and comments both during and after the workshop. This feedback is part of the continual improvement process of presenting training courses. The instructional team makes every effort to incorporate suggestions in future training courses.

Input was received in an open forum after day one. At the conclusion of the class, written evaluations were collected and summarized. (Appendix C, page 17)

As a result of review of the evaluations, having discussions with NBP personnel and the instructional team, the following recommendations are being made.

- Incorporate the goals and objectives exercise as well as the emergency response plan into future 301 courses
- Continue to have NBP Certified Utilities make presentations
- Continue to use different presentation techniques (lecture, guided discussion, breakouts, demonstration, etc.)

## Appendix A: Attendee List — EMS 301 – Seattle, September 26-27, 2006

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## Appendix B: Agenda

National Biosolids Partnership Environmental Management  
System (EMS) Workshop EMS 301  
September 26-27, 2006  
Seattle, Washington

### Day 1

#### Tuesday September 26, 2006

7:00 – 8:00 am	Breakfast – Networking Opportunity	
8:00 – 8:15 am	Welcome and Introduction (Machno, Engel)	
8:15 – 8:45 am	Overview and Objectives (Engel)	Section 1
8:45 – 10:00 am	EMS 201 Element Review (Dean) Exercise – Goals and Objectives	Section 2
10:00 – 10:15 am	Break	
10:15 – 12:00	Case Study – Clackamas County, Oregon	
12: 00 – 1:00 pm	Lunch – Networking Opportunity	
1:00 – 2:00 pm	Emergency Preparedness – Element 11 (Dean) Exercise	Section 3
2:00 – 3:00 pm	Documentation/Document Control – Element 12 (Dean)	Section 4
3:00 – 3:15 pm	Break	
3:15 - 3:45 pm	Document and Document Control (continued)	
3:45 – 4:15 pm	Review of Day 1 (Engel and Machno)	

## Day 2

Wednesday September 27, 2006

7:00 – 8:00 am	Breakfast – Networking Opportunity	
8:00 – 8:15 am	Overview of Day 2 (Engel)	
8:15 – 9:00 am	Monitoring and Measurement – Element 13 (Toby) Exercise	Section 5
9:00 – 10:00 am	Nonconformance – Element 14 (Dean)	Section 6
10:00 – 10:15 am	Break	
10:15 – 10:45 am	Performance Report – Element 15 (Toby) Exercise	Section 7
10:45 – 12:00	Internal Audit – Element 16 (Dean) Exercise	Section 8
12:00 – 1:00 pm	Lunch – Networking Opportunity	
1:00 – 2:15 pm	Management Review – Element 17 (Dean)	Section 9
2:15 – 3:00 pm	Next Steps – Assignment for NBP EMS 401	
3:00 pm	Adjourn Evaluations Next Workshop (NBP EMS 401 – January 23-24, 2007)	

## Appendix C: Course Evaluations

**COURSE EVALUATION**  
Environmental Management Systems  
September 2006  
Program # 060751

<b>PROGRAM</b>	<b><u>Poor</u></b>					<b><u>Excellent</u></b>
	1	2	3	4	5	
Course content met expectations					4.40	
Level of content was appropriate					4.60	
Course was relevant to job needs					4.33	
Time allocated for coverage of topics					4.50	
Effectiveness of audio visuals					4.70	
Usefulness of course materials/handouts					4.80	
Accomplishment of learning objectives					4.50	
<b>PRESENTATIONS</b>						
Interesting					4.70	
Responses to questions					5.00	
Emphasis on important topics					4.90	
Clarity of presentation					4.90	
Enthusiasm and energy					4.80	
Knowledge of the subject					5.00	
Group discussions					4.80	
Breakout Session					5.00	
<b>OVERALL RATING OF COURSE</b>						
Course					4.70	
Instructor(s)					4.90	
Organization of program					4.80	
Facility used/meeting room					4.80	
Break functions/lunch functions					4.70	
Hotel accommodations					4.70	

# WRITTEN COMMENTS

## 1. General Comments

- A. Doug does an excellent job in presenting the material
- B. Very good feedback
- C. Doug did a great job
- D. Workshop was very helpful in furthering the understanding of the elements and encouraging us to move forward
- E. Good structure-Liked preliminary review of elements
- F. I really enjoyed this presentation-good information. The knowledge from those who have been through this was great and inspired me to get back into to program
- G. Doug Dean did an excellent job in providing both a general outline of what has to be done and also specific examples
- H. Another great workshop to help me achieve my EMS goals
- I. Too much food

## 2. Describe the most valuable portion of the course.

- A. Scenario was most valuable
- B. Networking with others
- C. Interaction with other agencies. Examples from other agencies. Explanations of the elements
- D. Good discussions/examples of elements. Implementation
- E. Presentation from others. Practice examples
- F. Getting numerous examples of what worked for other municipalities that have already received their certification
- G. The exercises to help us understand real world examples. Having guest speakers who talk from experience
- H. All

## 3. Describe the least valuable portion of the course.

- A. N/A
- B. N/A
- C. I had thought in the previous 2 workshops that the breakout exercises were less valuable than the mainstream coursework. So I was glad to see that workshop 301 minimized those. I do have one friendly suggestion. Now that some agencies have been certified, it might be helpful to mention some of the specific benefits that they have realized by doing the NBP EMS. The workshop was excellent in describing “what” to do and “how to do it”, but it would be helpful to hear “why” we should do it so we have some good ammunition to convince our colleagues back home.
- D. None
- E. Was none

## Appendix D: Exercises

# NBP EMS Workshop 301 Assignment

## Instructions

At the last workshop, each participant was asked to complete the following in preparation for the upcoming Workshop 301. Please answer each item as specifically as you can. If you have any questions, please contact your Account Executive, Pete Machno (peterm7@prodigy.net), or Lori Stone (lori.stone@adelphia.net).

## Assignment

### EMS Status/Progress

1. Which elements have you completed so far? \_\_\_\_\_
2. What seems to be your most difficult challenge to EMS development progress? \_\_\_\_\_  
\_\_\_\_\_
3. **When** was the last time you worked/interacted with your Account Executive? Was it helpful? Do you have any recommendations for improvement? \_\_\_\_\_  
\_\_\_\_\_
4. **When** is your projected date for EMS completion? Once you complete your draft manual, your Account Executive will schedule your EMS Status Review, after which you can begin your operational phase. \_\_\_\_\_

### Biosolids Quality/Critical Control Points

5. Have you had any difficulties with producing consistent quality biosolids, and managing your process/critical control points? If yes, please explain. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### Relations with Interested Parties

6. **Who** is your state regulator responsible for your biosolids management operations? **When** was the last time you spoke with him/her? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### Workshop 301 Preparation

7. Before the workshop, please read about Elements 11-17 in the **NBP EMS Guidance Manual**. List 3 specific questions that you would like answered at Workshop 301.  
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\_\_\_\_\_

## Monitoring/Measurement Development

### EMS 301 – September 2006

National Biosolids Partnership

Assignment: Choose goals that address outcome areas. Discuss with group, fill out table. Document your assumptions. Be prepared to share results with full group. Develop action plans (on flip chart) to ensure data are collected to support proposed metrics.

Goal	Primary Audience	Primary purpose	Outcome areas				Source of data	Proposed measure	Is it SMART?
			A	B	C	D			
Reduce purchased energy use per M gallons treated by 10% from 2004 baseline by 2007.	Management, ratepayers, elected officials	Reduce costs, improve environmental performance, improve efficiency, support investment in premium efficiency motors when replacing equipment		x		x	Power bills, onsite meters	Purchased KWh per MM gallons treated per year	Yes

Outcome areas: A=Quality Management Practices, B= Relations with Interested Parties, C= Regulatory Compliance, D= Environmental Performance  
 SMART = Specific, measurable, achievable, relevant and time-specific

## **Nonconformances**

### **Hypothetical Situation #1**

While loading biosolids, a contractor's truck rolls down the facility driveway into a busy street causing an accident and a biosolids spill because its wheels are not chocked. Assume that there is a properly documented procedure that requires chocking of wheels during biosolids loading.

### **Hypothetical Situation #2**

During a routine walk through of the laboratory, the laboratory manager sees someone using a piece of equipment that is no longer included in the approved Standard Method for the analysis that is being conducted. When he asks the worker why he is using this piece of equipment the worker shows him a hard copy of a procedure that includes that piece of equipment.

### **Hypothetical Situation #3**

While out at the grocery store, a utility General Manager was approached by a facility neighbor who tells him that he called in a complaint about odors from the facility but has not heard any follow-up in over a month and the odors are not as bad but persisting. When he returned to the facility the GM looked up the complaint in the complaint log and found that it wasn't recorded. The main line telephone receptionist remembered the call and had passed the complaint on to the chief operator on a sticky note which got lost and the operator forgot to follow-up.

## **Breakout Session**

A breakout session was conducted after the lecture segment of non-conformance. Attendees were broken down into three groups and were asked to review three hypothetical situations. They were asked to identify the non-conformance, the most likely cause and craft a solution to the problem. The following are the results.

### **Hypothetical No. 1**

- Procedure wasn't followed
  - Goals affected- spills (Element # 5)
  - Trained (Element # 8)
  - CCP (Element # 3)
  - Emergency Response (E. 11)
- Most likely cause
  - Not following procedure
  - Possible PM
- Solution
  - Check driver training record
  - Possible retraining
  - Add SIGNAGE
  - Check chock supplies
  - Possible curbing in area

### **Hypothetical No. 2**

- Non-Conformance
  - Equipment wasn't removed ( 7 )
  - Procedure not removed ( 12 )
  - Lack of training , communication ( 8, 9 )
  - M/M ( E. 13 )
- Cause
  - Failure of equipment not removed
  - Failure of employee recognition
- Fix
  - Remove the equipment
  - Remove procedure
  - Possible retrain

### **Hypothetical No. 3**

- Non-Conformance

No follow-up to complaint (7,8,9,12,13)

- Most Likely cause

Poor procedure for receiving and responding to complaints

- Solution

Complaint log input procedure

Name, #,Date, time

Who complaint passed to

When it was responded to

Training in old/new procedures

**Corrective and Preventive Action Plan Form**  
**CPAP No.:**

Issue Date:

Solution  
Due Date:

Issued to:

Closed by:

Department:

Closing Date:

Phone:

Requested by:

Phone:

Non-conformance Type:

Legal & Other Requirements

Monitoring & Measurement

Operational: \_\_\_\_\_

Policy

Documentation

Other: \_\_\_\_\_

Non-conformance Problem Statement:

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Most Likely Cause:

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Implemented Solution:

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Results (confirming effectiveness of solution):

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## Management Review

### EMS 301 – September 2006

National Biosolids Partnership

Exercise

You are responsible for Element 17. You need to:

- set review procedure, schedule and scope
  - ensure that EMS performance, adequacy and need for change of policy, goals, objectives and performance measures are addressed by the review
  - include internal and 3<sup>rd</sup> party EMS audit findings, changing circumstances and commitment to continual improvement in the review
  - document the review and resulting changes
1. Outline your approaches for planning a management review and why they are the best for managing each situation
  2. Outline an action plan to ensure you are ready for your review

Scenario 1 - Small agency, Class B product, land application. Public Works Director wants to do review, agency has had some complaints from new subdivision near land application site, first internal audit found no nonconformances, 3<sup>rd</sup> party audit found several major nonconformances.

Scenario 2 - Small agency, Class B product, land application. EMS was requested by mayor. No history of complaints from public and little interest shown in operations. Plan to form regional composting facility within 5 years. Audits found several minor nonconformances. Near miss occurred during year when driver failed to properly secure latch on truck; no release.

Scenario 3 - Medium agency, Class B product, land application. Wastewater treatment plant supervisor supports EMS, mayor has questioned value. Biosolids trucked by contractor up to 80 miles to 2 adjoining counties. Community is growing as people move to scenic setting. Internal audit found several nonconformances which were addressed before 3<sup>rd</sup> party audit, when several other nonconformances were identified. No history of complaints because biosolids trucked to distant location.

3. Please be prepared to summarize your plan to the group.

<b>MADISON METROPOLITAN SEWERAGE DISTRICT</b>
Road1610 Moorland Madison, WI 53713-1201 Telephone (608) 222-1201 FAX (608) 222-2703
Jon W. Schellpfeffer Chief Engineer & Director

## Memorandum

**To:** Internal EMS Team  
**From:** David Taylor  
**Date:** October 10, 2003  
**Subject:** EMS Internal Audit Results and Follow-up

Our first internal EMS audit is now complete. Thanks for taking time from your busy schedules to audit your respective sections and complete the audit worksheets. A packet containing the worksheets is being circulated separately. Table 1 contains a brief summary of comments/issues raised during the audit. It also briefly identifies response actions that have already been taken or will be taken to address these comments/issues. My general sense after reviewing the worksheets is that we have done a good job in developing and implementing the EMS. There were comments in five (5) key areas that I thought were particularly significant. These are identified and discussed below.

### **1. Effective communication of Biosolids Management Policy and the EMS to District Staff.**

We have used the following approaches to communicate information on the Biosolids Management Policy and EMS to District staff:

- presentations at plant meetings
- articles in the Metro Interceptor and Fact Sheets
- placing a PowerPoint presentation and other information on our internet and intranet sites
- including an introduction to the EMS as part of new employee orientation
- Placing information placards at VLB
- Providing information sheets to contractors

There is a base level of understanding regarding the Biosolids Management Policy and EMS that all employees should have. Specifically, they should know that: 1) we have a biosolids management policy that promotes the beneficial reuse of biosolids in a cost effective manner; 2) we have an Environmental Management System (EMS) which is a tool that is used to help manage the Metrogro Program; and 3) The EMS focus is on “raising the bar” by going beyond simply meeting existing regulatory requirements.

While we have tried several different methods of internal communication with respect to the above, we need to look at additional options. I have a couple of ideas that I will share with you at our next internal meeting, but would like to hear your thoughts as well.

## **2. Library organization.**

We have established electronic links in the EMS Manual to all applicable rules and regulations. Hard copies of some of these rules/regulations are also maintained in the library, but it was difficult for the auditor to find these documents. Organization of the library has been recognized as a need by the District. Dollars have been allocated in the 2004 budget for this purpose and the administration group will be taking the lead on this effort

## **3. Documentation and document control.**

Finding electronic or hard copies of letters, etc. was challenging, a point that was noted on several worksheets. I have been working with Shirley to set up a document management system that meets the requirements of the EMS program. At this stage, it appears that the best approach is to use the management capabilities of the OnBase document imaging system. We have moved a copy of all EMS related information into the OnBase system and are playing around with file hierarchy, etc. in an effort to develop a common sense, user friendly system. My current goal is to begin routine use of OnBase by the end of this year. We are also scheduled to get a new module for OnBase in 2004 that will help with some aspects of document management.

## **4. Procedures for identifying, investigating and taking corrective action if a noncompliance is identified.**

There was some uncertainty as to whether or not we have procedures in place for identifying, investigating and taking corrective actions if a noncompliance (legal, regulatory or EMS related) is identified. There are well defined procedures specified in our WPDES permit for regulatory nonconformances. In addition, the EMS does specify a procedure for addressing EMS nonconformances. I have rewritten the section of the EMS manual that addressed nonconformances (Element 14) to make things a bit clearer, included references to specific sections of the WPDES permit, and added links where appropriate. A copy of the revised section is attached for your review.

## **5. Contractor awareness of expectations and responsibilities relative to key areas covered in the EMS.**

Audit comments focused on contractor awareness of emergency response/preparedness procedures and general "housekeeping" practices. I broadened the scope of this comment because contracted services are a significant part of our beneficial reuse program. Our current contract contains language that addresses the EMS and the contractor's responsibilities relative to the EMS. We recently developed a "Contractor Checklist" that identifies some supplemental training that contracted employees need to receive, both operationally and with respect to general EMS awareness. The contractor agreed with the

training areas and agreed to use the checklist as a tool to document that training has occurred. Training in operational areas has been delivered. Regarding EMS awareness, an information sheet was prepared for use by contracted employees. Some, but not all of the contracted employees have reviewed this information sheet. The contractor expects that all employees will have reviewed this information by the end of this year. Emergency Response and housekeeping are discussed in the supporting information packets that were provided to the contractor. Mike and I will review this information at the end of the hauling season, meet with the contractor and then determine if changes are necessary.

**Table 1: Summary of Audit Recommendations and Responses**

<b>Element</b>	<b>Significant Comments/Suggested Modifications</b>	<b>Response</b>
<b>Documentation of EMS</b>	<ul style="list-style-type: none"> <li>• Add link to Emergency Response manual in EMS manual</li> <li>• Consider providing additional explanation on selection of critical control point and biosolids value chain</li> </ul>	<ul style="list-style-type: none"> <li>• There already is a link to the emergency response manual under element 11</li> <li>• Will make some minor wording changes in element 3 to provide additional information on selection of CCP's</li> </ul>
<b>Biosolids management policy</b>	<ul style="list-style-type: none"> <li>• Consider adding information about housekeeping directly in the EMS</li> <li>• Need to find some more effective methods of informing staff about EMS and the biosolids management policy</li> </ul>	<ul style="list-style-type: none"> <li>• No change will be made-there is a direct link to the Code of Good Practice, which addresses housekeeping</li> <li>• Will work with internal team to find more effective communication methods</li> </ul>
<b>Critical control points</b>	<ul style="list-style-type: none"> <li>• Consider providing additional explanation on selection of critical control point and biosolids value chain</li> </ul>	<ul style="list-style-type: none"> <li>• Will make some minor wording changes in element 3 to provide additional information on selection of CCP's</li> </ul>
<b>Legal and other requirements</b>	<ul style="list-style-type: none"> <li>• Consider specifying a regular interval for review of requirements</li> <li>• Correct web links so they work on all District PCs</li> <li>• Improve organization of admin library</li> </ul>	<ul style="list-style-type: none"> <li>• No change will be made-tracking is an ongoing activity and we already review on a semi-annual basis</li> <li>• Will work with IT department on this</li> <li>• Library organization has been identified as a 2004 project</li> </ul>
<b>Goals and objectives for continual improvement</b>	<ul style="list-style-type: none"> <li>• Consider more formally documenting recommended changes to goals and objectives</li> <li>• Need to provide better/easier access to documentation</li> </ul>	<ul style="list-style-type: none"> <li>• Has been done (see 01/13/03 memo)</li> <li>• Work with OnBase system has been initiated</li> </ul>
<b>Public participation in planning</b>	<ul style="list-style-type: none"> <li>• None</li> </ul>	
<b>Roles and responsibilities</b>	<ul style="list-style-type: none"> <li>• None</li> </ul>	

<b>Training</b>	<ul style="list-style-type: none"> <li>• Need to provide better/easier access to documentation</li> </ul>	<ul style="list-style-type: none"> <li>• Work with OnBase system has been initiated</li> </ul>
<b>Communication</b>	<ul style="list-style-type: none"> <li>• None</li> </ul>	
<b>Operational control of critical control points</b>	<ul style="list-style-type: none"> <li>• None</li> </ul>	
<b>Emergency preparedness and response</b>	<ul style="list-style-type: none"> <li>• Consider further documenting contractor's responsibility</li> </ul>	<ul style="list-style-type: none"> <li>• Work has been done (e.g. contractor's checklist), needs will be reviewed again at the end of the fall hauling season</li> </ul>
<b>EMS documentation and document control</b>	<ul style="list-style-type: none"> <li>• Correct web links</li> </ul>	<ul style="list-style-type: none"> <li>• On-going</li> </ul>
<b>Monitoring and measurement</b>	<ul style="list-style-type: none"> <li>• None</li> </ul>	
<b>Nonconformances: preventive and corrective action</b>	<ul style="list-style-type: none"> <li>• Check document references and make sure that referenced documents exist</li> <li>• Couldn't find District procedures for investigating nonconformances</li> </ul>	<ul style="list-style-type: none"> <li>• Terminology and references will be checked</li> <li>• Procedures were identified-but this element of the EMS has been rewritten &amp; links added to add clarity</li> </ul>
<b>Periodic biosolids program and EMS performance report</b>	<ul style="list-style-type: none"> <li>• Goals report is on internet but would like us to consider providing more year end statistics/summaries</li> </ul>	<ul style="list-style-type: none"> <li>• Will consider adding information starting with 2003 summaries</li> </ul>
<b>Internal audit</b>	<ul style="list-style-type: none"> <li>• A more complete description of audit methodology, protocol and scope should be provided</li> </ul>	<ul style="list-style-type: none"> <li>• Will add language that references third party audit guidance documents</li> </ul>
<b>Periodic management review of performance</b>	<ul style="list-style-type: none"> <li>• None (not applicable since the first management review of the EMS has not yet</li> </ul>	

# Sample Audit and Corrective Action Worksheet

**Element #:**

**Audit type:**

**Auditor's name:**

**Period being audited:**

**Audit date(s):**

**Summary of findings:**

**Nonconformances (if any) and cause:**

**Corrective actions already taken (if any):**

**Recommended additional corrective actions (if any):**

**Person(s) responsible for implementing corrective action(s):**

**Changes in policies, programs, plans, operational controls and monitoring/measurements needed to prevent reoccurrence (if any):**

**Estimated completion date:**

**Required resources:**

**Tracking:**

## Corrective action worksheet

Date	Status of corrective action	Supporting documentation

Source: Madison Metropolitan Sewerage District