



NBP EMS 301 Workshop

Summary Report

Prepared by



October 5 - 6, 2005

Grand Rapids, MI

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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 October 5-6, 2005. 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 the EMS demonstration project.



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 nine agencies that are currently certified include:*

- Orange County, California
- Madison, Wisconsin
- Los Angeles, California
- Ft. Worth, Texas
- Encina WW Authority, California
- King County, Washington
- District of Columbia
- Butler County, Ohio
- Metro WW Reclamation, Colorado

*see 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 43 attendees representing 14 utilities. The list of attendees is shown in Appendix A, page 14.

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. (See Appendix E, page 24)

Prior to attending the workshop, students were given the following assignments:

- Review Elements 1-10 and be prepared to report on progress and any barriers that may have affected or prevented task completion.
- Review Elements 11-17

WORKSHOP STRUCTURE

The agenda for the workshop is shown in Appendix C, page 19. 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, representatives from Butler County, Ohio and Encina Wastewater Authority, Carlsbad, California (NBP certified programs) attended, made presentations on specific elements and provided valuable input. They provided real life experiences on benefits and barriers to their EMS implementation program.

OBJECTIVES AND EXPECTATIONS

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.

Objectives

- Identify NBP expectations i.e. (minimum conformance requirements) for Elements 11 – 17.
- Understand the difference between minimum conformance requirements and key areas of interpretation in the *Third Party Verification Auditor Guidance Manual*.
- 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.

Expectations

- Have a well defined Emergency Preparedness and Response Program.
- Establish and maintain documentation for the biosolids management program.
- Have monitoring and measurement activities in place to demonstrate compliance with legal/regulatory requirements, document performance at critical control points and operational controls and track performance toward achieving biosolids program goals.
- Establish, document and maintain procedures for investigating noncompliance with legal/regulatory and other requirements, including nonconformance issues that may arise from monitoring/measurement activities, EMS protocols, or nonconformances noted as a result of internal or external EMS audits.
- Demonstrate how to prepare a performance report that provides summary information on a wide variety of activities associated with the biosolids management program and the EMS.
- Review how to conduct periodic internal audits of the EMS program in order to maintain the elements of the system and to make sure necessary changes and updates are included.

- Conduct a management review of its biosolids and EMS program on an annual basis.
- Understand the process of leading the agency through the development of the EMS.

EMS WORKSHOP

Prior to starting with Elements 11-17, a facility update was conducted where facilities reported their status on Elements 1-10 and any barriers they encountered. Next there was a short review of Elements 1-10.

NBP/EMS Elements 1-10 Review

Element 1: EMS Manual

The NBP expectations are:

- Manual needs to describe applicable policies, programs, plans, procedures and management practices in the EMS.
- Manual needs to be approved by top management.
- Manual must contain the policy and EMS procedures required by the EMS Elements.
- Manual needs to contain a cross reference to public participation, communications, emergency preparedness and response programs and plans required by the EMS Elements.
- Manual needs all applicable Critical Control Points.

Element 2: EMS Policy

The NBP expectations are:

- Policy that commits the organization to the NBP Code of Good Practice.
- 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.

The NBP expectations are:

- Identify all CCPs that you need to manage to support the four NBP outcomes.
- Identify Environmental/quality Impacts for each one.
- Identify CCPs that are consistent with the NBP National Manual of Good Practice – Appendix F.
- Demonstrate that you manage them effectively.
- Monitor key parameters as needed at each CCP.

Element 4: Legal and Other Requirements

The NBP expectations are:

- 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.

The NBP expectations are:

- Goals and objectives that support improvement in the four NBP outcome areas.
- Consider input received through public participation activities.
- Use SMART criteria (Specific, Measurable, Achievable, Relevant and Time-bound).
- Establish action plan that spells out the details.
- Communicate goals to employees, contractors, and make available to interested parties.
- Measure progress – performance indicators.
- Review and update.

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.

The NBP expectations for Public Participation are:

- List of identified interested parties
- Credible mechanisms for:
 - Receiving input
 - Considering input as part of establishing goals and objectives
 - Responding to input
- Documented approach / procedure
- Records of input / consideration / response

The NBP expectations for Communication are:

- Make the following information available:
 - Biosolids management policy
 - Applicable legal and other requirements
 - Biosolids program goals and objectives
 - Periodic biosolids program performance report
 - Results of independent, third-party EMS verification audit

Element 7: Roles and Responsibilities

The NBP expectations are:

- Document individual roles and responsibilities relative to biosolids EMS.
- Appoint individual with overall responsibility for development, implementation and review of EMS.
- Compare job descriptions to biosolids value chain, CCPs, and EMS Elements to insure all aspects of program are addressed.
- Ensure individuals responsible for EMS have experience and expertise necessary.
- Define contractors' roles and responsibilities for EMS in a service agreement or memorandum of understanding.
- Consider roles and responsibilities part of EMS review process.
- Document modifications to job descriptions, service agreements, and memoranda of understandings and include them in document control system.

Element 8: Training

The NBP expectations are:

- Incorporate biosolids management and the EMS into training program
- Training programs should include general EMS training and specific unit process training.
- Include normal operations and emergency situations.
- Compare training program to biosolids value chain, CCPs, and EMS Elements.
- Compare roles and responsibilities of Element 7 with training aspects identified in Element 8.
- Document all training activities within the organization.
- Consider an overall training documentation system in the organization.
- Verify that partners/contractors establish and document their own training programs.

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

The NBP minimum conformance requirements are:

- 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.

Element 12 – Documentation/Document Control

The NBP minimum conformance requirements are:

- 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

The NBP minimum conformance requirements are:

- 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.

Element 14 – Nonconformances: Preventive and Corrective Action

The NBP minimum conformance requirements are:

- 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.

Element 15 – Program and EMS Performance Report

The NBP minimum conformance requirements are:

- 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
- Make the periodic Biosolids Management Program Report available to the public.
- 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.

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.

Element 16 – Internal EMS Audit

The NBP minimum conformance requirements are:

- 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.

Element 17 – Management Review

The NBP minimum conformance requirements are:

- 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.

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, Appendix B, page 18. At the conclusion of the class, written evaluations were collected and summarized. (Appendix D, pages 21-23)

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

- Review and update the NBP EMS 301
- Continue to have NBP Certified Utilities make presentations
- Recommend site visit by staff prior to class to review classroom setup
- Continue to use different presentation techniques (lecture, guided discussion, breakouts, demonstration, etc.)

Appendix A: Attendees list
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October 5-6, 2005

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Appendix B: Input at End of Day One

Mary Moore's presentation was helpful (4)

Room not set up right

Input helpful

So much to pick up

Better understanding of SOPs

Exercises helpful

Understand how elements interrelate

Better overview, examples and deficiencies were helpful

Room an issue for some of us

Appreciate "Keep it Simple" (2)

Madison examples helpful

Review of Elements made them seem easier

Would have liked to see Madison Elements 1-10 as well

Sharing what other Cities are doing is helpful

Interesting that even though Madison was certified that elements still had holes

Room cold

Having "Minimum Conformance Requirements" good (3)

Emergency preparedness break out was good

Made Elements 1-10 clearer and 11-17 easier to understand

Appendix C: Agenda

National Biosolids Partnership Environmental Management System (EMS)
Workshop
EMS 301
October 5 and 6, 2005
Grand Rapids, Michigan

Day 1

Wednesday October 5, 2005

7:00 – 8:00 am	Breakfast – Networking Opportunity	
8:00 – 8:30 am	Welcome and Introduction (Machno, Engel)	
8:30 – 8:45 am	Overview and Objectives (Engel and Dean)	Section 1
8:45 – 9:30 am	EMS 201 Element Review (Dean)	Section 2
9:30 – 10:00 am	Facility Status Update (Engel and Dean) Issues/ Barriers/Success Stories	
10:00 – 10:15 am	Break	
10:15 – 11:30	Facility Status Update (cont'd) (Engel and Dean)	
11:30 – 12:00	Case Study- Butler County, Ohio Mary Moore	
12: 00 – 1:00 pm	Lunch – Networking Opportunity	
1:00 – 1:45 pm	Emergency Preparedness – Element 11 (Toby)	Section 3
1:45 – 2:45 pm	Documentation/Document Control – Element 12 (Dean)	Section 4
2:45 – 3:00 pm	Break	

3:00 – 4:00 pm	Monitoring and Measurement – Element 13 (Dean)	Section 5
4:00 – 4:30 pm	Review of Day 1 (Engel and Machno)	
5:45 – 10:00 pm	Dinner/Picnic on the Lake at Camp Blodgett	

Day 2

Thursday October 6, 2005

7:00 – 8:00 am	Breakfast – Networking Opportunity	
8:00 – 8:15 am	Overview of Day 2 (Engel)	
8:15 – 9:30 am	Nonconformance – Element 14 (Dean)	Section 6
9:30 – 9:45 am	Break	
9:45 – 10:15	Case Study – Encina Wastewater Authority Tish Berge	
10:15 – 11:00	Performance Report –Element 15 (Toby)	Section 7
11:00 – 12:00	Internal Audit – Element 16 (Dean)	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	
3:00 pm	Adjourn Evaluations	

Appendix D: Course Evaluations

COURSE EVALUATION

Environmental Management Systems

October 5-6, 2005

Program # 050806-3

PROGRAM	<u>Poor</u>				<u>Excellent</u>
	1	2	3	4	5
Course content met expectations					4.18
Level of content was appropriate					4.11
Course was relevant to job needs					4.21
Time allocated for coverage of topics					4.21
Effectiveness of audio visuals					3.96
Usefulness of course materials/handouts					4.07
Accomplishment of learning objectives					4.07
PRESENTATIONS					
Interesting					3.74
Responses to questions					4.33
Emphasis on important topics					4.37
Clarity of presentation					4.11
Enthusiasm and energy					4.19
Knowledge of the subject					4.52
Group discussions					4.07
Breakout Session					3.85
OVERALL RATING OF COURSE					
Course					4.29
Instructor(s)					4.39
Organization of program					4.21
Facility used/meeting room					2.36
Break functions/lunch functions					4.25
Hotel accommodations					3.65

WRITTEN COMMENTS

1. General Comments

- A. Recommend including case studies of facilities that have successfully completed certification. Include manual copies, pictures of facilities, examples of SOP forms used, computer systems used, annual report copy & more.
- B. Great networking opportunity-chance to learn from others. Larger room block at hotel needed.
- C. I think you need to “perk” training up a bit to keep peoples interest. Good info in training but, if you are not keeping interest it doesn’t matter.
- D. Excellent program moving to certification in this step wise manner makes it much more manageable considering the magnitude of the task.
- E. I really enjoyed this session. I learned more about EMS & feel more confident that certification is achievable.
- F. Meeting room was inadequate for a training room.
- G. Good people.
- H. Course fine. Room visual blocked but made up by food.
- I. A much better presentation of material.
- J. Next training should seek to maximize the amount of useful information delivered to participants in the time available.
- K. Best of three workshops. Enjoyed outing at Camp Blodgett.
- L. Was nice to finally receive formal group training.
- M. I do not care to come to this hotel again.

2. Describe the most valuable portion of the course.

- A. I really liked the agencies presentations.
- B. Detailed examples of successful documents & procedures.
- C. Real world stories & experiences. Addition of criteria.
- D. General review of elements.
- E. Networking/written material (handbook).
- F. The presentations from others who had just been certified. Excellent!
- G. Review of elements from certified municipalities. Role play for draft procedure.
- H. Manuals & examples.
- I. Elements.
- J. Mary Moore very good & internal audit demo.
- K. Listening to agency presentations. Lessons learned are extremely valuable when applied. The recap & repetition of elements reinforced the important aspects of each.
- L. Listening to representatives from certified facilities was very helpful.
- M. Speakers from Encina.
- N. Minimum conformance requirements. Trish Berge’s presentation was very useful. Comparing Min. conf. req.’s to Madison elements.

- O. Folk that has been doing this awhile.
- P. Networking.
- Q. Networking with people around the table. Breakout session.
- R. The presentation by the certified people. That others have the same problems. Looking at examples (Madison's elements).
- S. Going through the basic requirements of each element. The people from accredited agencies were also very helpful.
- T. Breakdown of elements. Mary from Butler, Trish from Encino did excellent presentations.

3. Describe the least valuable portion of the course.

- A. Repetition of written materials.
- B. Last segment audit element may have been more beneficial if done as a break out session.
- C. All elements should be able to be completed in a much faster time frame. Made cut down to two work shops for your next group.
- D. Extreme hot/cold. Need a group microphone or multiple units for last demonstration.
- E. The review. 2 Hours with no break was to long. Meeting room was too small.
- F. It all provided value, some more than others.
- G. Audits.
- H. The room was too small. Difficult to move around & see presentations.
- I. The round robin discussion where everyone talked about what they liked about the class.
- J. Presentation of material moved to slow.
- K. Hey, really don't need to watch power point & read it to me then generalize. Would like specific examples. Was hoping for real examples of things like Plan, Do, Check, Act. This happened, EMS required this & the outcome was....
- L. Nothing comes to mind.
- M. I feel that this was the best workshop yet. The hotel & meeting room was the biggest disappointment.
- N. Some of the break out sessions, audit play.
- O. Guest speakers did not really help.

Appendix E: Breakout Sessions

Breakout sessions were conducted after the lecture segments of Emergency Preparedness (Element 11) and Program and EMS Performance Report (Element 15). Attendees were broken down into three groups and were asked to compare the NBP minimum conformance requirements for each element with the corresponding Madison Element which was included in the EMS 301 Workbook.

EMS (Element 11) – Emergency Preparedness

The NBP minimum conformance requirements matched up well with Madison’s Element 11

EMS (Element 15) – Program and EMS Performance Report

The NBP minimum conformance requirements matched up well with Madison’s Element 15