



NBP EMS 201 Workshop

Summary Report

Prepared by



May 24-25, 2005

Kalamazoo, 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 Environmental Management Systems (EMS) workshop in Kalamazoo, Michigan on May 24-25, 2005. This workshop was an opportunity for these agencies to interact and continue the process of developing and implementing an EMS. This workshop (EMS 201) is the second 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 six agencies that are currently certified include:

- Orange County, California
- Madison, Wisconsin
- Los Angeles, California
- King County, Washington
- District of Columbia
- Butler County, Ohio

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 40 attendees representing 16 utilities. The list of attendees is shown in Appendix A, page 12.

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

The purpose of this workshop was to cover Elements 1-10, briefly review the key points of EMS 101, and reinforce the essentials of the elements by having the attendees participate in several hands-on exercises.

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

- Review Elements 1-10 of the Guidance Document.
- Draft a policy for their facility after reviewing a draft policy statement from Madison, Wisconsin and others, for use during one of the workshop exercises. List the individuals who will need to sign off on the policy.
- Bring to the workshop, any issues regarding EMS implementation with contractors.
- Bring to the workshop, any issues regarding EMS implementation or EMS external or internal communications.
- Several laptop computers will be needed for the group exercises, if you have one please bring it with you to the workshop. The laptop should be loaded with PowerPoint and have the means to save to a disc.

WORKSHOP STRUCTURE

The agenda for the workshop is shown in Appendix B, page 17. The workshop was designed to maximize attendee participation. This was accomplished by breakout sessions, guided discussions and question and answer opportunities. The workshop began with a hands-on exercise that demonstrated teamwork and communication. The intent was to reinforce Element 6 (the importance of internal communications) in the EMS development and implementation process. See Appendix C, Exercise 1, page 20.

The manual was organized with Elements 1-10 being covered in sections 1-10. The appropriate section from the Madison, Wisconsin EMS Manual was included in each section.

During the workshop, a representative from Orange County, California, (a NBP certified program) attended 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.

- Identify NBP expectations for Elements 1-10
- Provide guidance to core team and upper management in the development of NBP/EMS/Policy
- Identify Critical Control Points, Operational Controls and Environmental Impacts
- Identify legal and other requirements
- Determine goals and objectives for the EMS
- Suggest ways of getting public participation in planning
- Suggest ways of communicating pertinent NBP/EMS information to interested parties
- Identify roles and responsibilities of personnel involved in developing and implementing the NBP/EMS
- Design, develop and deliver an EMS overview training program for the facility
- Understand the process of leading the agency through the development of the EMS

On day one, the instructional team solicited input from the participants on their EMS experience and their expectations of the workshop.

Listed below are the workshop expectations given by the class.

- How to structure the EMS
- Examine Elements in more detail
- Good introduction/help starting
- Get fired back up
- Technical networking
- How to get from point A to point B
- Certification
- Information on public participation

The class expectations and workshop objectives were a good match increasing the chances of a successful exchange of information.

EMS WORKSHOP

Prior to starting with the Elements, an exercise was conducted on “Identifying challenges in developing and implementing a Biosolids EMS”. There are many pressures facing biosolids operations, such as reduced land application sites and poor public perception of biosolids. The 10 groups were each given an EMS challenge and the task of developing goals and action plans as shown in Appendix C, Exercise 2, pages 21-30.

NBP/EMS Elements 1-10

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

Several participants brought copies of their policy to the course. In addition, copies of the Madison, Wisconsin; Orange County, California, and King County, Washington were also provided. Exercise 3, Appendix C, page 31 was designed so that each group would review one or more policies and determine if they met the NBP expectations.

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

Exercise 4, Appendix C, page 32 was designed so that each group could define CCPs, identify Environmental Impacts and develop Operational Controls of the CCPs.

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 4 for Orange County and Madison were reviewed. Exercise 4a, Appendix C, page 34 was conducted using a guided discussion.

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

Exercise 5, Appendix C, pages 35-37 was conducted where the attendees identified interested parties, input mechanisms and output mechanisms. The interested parties were then matched with appropriate inputs and outputs.

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

There was a group discussion on Element 7 utilizing the Elements from Orange County, California and Madison, Wisconsin.

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

A discussion included a review of Element 8 from Madison, Wisconsin and a subsequent exercise to determine whether the Element met the NBP expectations. It was also demonstrated how Element 7 – Roles and Responsibilities linked to Element 8 as well as Element 2 – Policy.

Conducting a Training Program

A discussion was conducted which included the essentials of an EMS trainer. Next the class embarked on designing, developing and delivering an EMS training program.

The first group was assigned the subject of: **What is a Biosolids EMS?**

The second group was assigned the subject of: **Why Implement a Biosolids EMS?**

The third group was assigned the subject of: **What is your Role in the EMS?**

The specific instructions for Exercise 6 are found in Appendix C, page 38.

ASSIGNMENTS

The participants were asked to do the following upon return to their facilities.

- Compare NBP expectations for Elements 1-10 and compare with their EMS
- Complete Elements 1-10 of the EMS Guidance Manual and bring the completed homework to the next workshop
- Review remaining elements in preparation for EMS 301

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 D, page 39. At the conclusion of the class, written evaluations were collected and summarized. (Appendix E, pages 40-43)

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

- Review and update the NBP EMS 201
- Have one or more NBP certified utilities present during the workshop
- Reduce the time spent on EMS 101 review
- Change introductions to the lunch break
- Increase instructional team mentoring

Appendix A: Attendees list

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Appendix B: Agenda

**National Biosolids Partnership EMS Workshop
EMS 201
May 24 and 25, 2005
Kalamazoo, Michigan**

Day 1 — Tuesday May 24, 2005

7:00 – 8:00 am	Breakfast – Networking opportunity	
8:00 – 8:30 am	Welcome and Introduction (DeMichele, Machno, Engel)	
8:30 – 9:30 am	Exercise 1 Teamwork and Communication (Toby)	
9:30 – 10:00 am	EMS 201 Workshop and Objectives (Engel)	Section 1
10:00 – 10:15 am	Break	
10:15 – 11:30 am	Exercise 2 (Dean) Identify challenges in developing and implementing a Biosolids EMS	Section 2
11:30 – 12:00 noon	Plan-Do-Check-Act Review Elements 1 – 10 (Dean)	Section 3
12:00 – 1:00 pm	Lunch	
1:00 – 2:00 pm	Elements 1 & 2 EMS Manual Policy Exercise 3 (Engel)	Section 4
2:00 – 3:15 pm	Elements 3 & 10 Critical Control Points Operational Controls Exercise 4 (Toby)	Section 5

3:15 – 3:30 pm	Break	
3:30 – 4:00 pm	Elements 4 & 5 Legal and other requirements Goals and Objectives (Dean)	Section 6
4:00 – 4:30 pm	Review of Day 1 (Engel and Machno)	

Day 2 — Wednesday May 25, 2005

7:00 – 8:00 am	Breakfast – Networking opportunity	
8:00 – 8:15 am	Overview of Day 2 (Engel)	
8:15 – 9:15 am	Elements 6 & 9 Public participation in planning and communication Exercise 5 (Toby)	Section 7
9:15 – 10:00 am	Element 7 Roles and Responsibilities (Dean)	Section 8
10:00 – 10:15 am	Break	
10:15 – 11:00 am	Element 8 Training Design, develop, deliver and evaluate a Training Program (Engel, Toby)	Section 9
11:00 – 12:00 noon	Training preparation (All) Exercise 6	
12:00 – 1:00 pm	Lunch	
1:00 – 2:30 pm	Training presentations Exercise 6	
2:30 – 2:45 pm	Break	
2:45- 3:15 pm	Wrap up Review Evaluations Next Workshop	

Appendix C: Exercises

Exercise 1 — Five-Square Puzzle Exercise

Preparation:

Prepare tables and chairs so there are five chairs for each table.

Place five numbered envelopes containing the puzzle pieces.
There should be three puzzle pieces in each envelope.

Instructions to students:

We will move to the tables with five vacant chairs at each table.
When you sit down the following rules will apply:

1. No talking
2. No gestures
3. No communication of any sort
4. No scissors allowed
5. You may give a puzzle piece to someone else at the table
6. You may **not** take a puzzle piece from another person

Your task is to create a square with your three (3) puzzle pieces.

The exercise is complete when all five persons at your table have created five equally sized squares.

EXERCISE 2. DEALING WITH CHALLENGES-Group 1

<i>The Challenge</i>	Describe the Solution/Goal	Develop Step-Wise Action Plan for Goal
<p>After an initial EMS Awareness class, the Director of Public Works pulls you aside and asks questions about the public participation/communication elements of the EMS. The Director is of the opinion that “no news is good news”, that it’s best to lie low and not give out information. The ability to implement these elements is in doubt without the Director’s support.</p>	<p>Educate Director that his view is not correct , that info needs to flow</p> <p>If info is held back it is perceived as negative</p>	<ol style="list-style-type: none"> 1. Implement a staff meeting 2. Highlight good news 3. Have upper administration tour facility 4. Show them how you want to inform the public 5. Give an example where you shared info and had a positive outcome, like less complaints

EXERCISE 2. DEALING WITH CHALLENGES - Group 2

<i>The Challenge</i>	Describe the Solution/Goal	Develop Step-Wise Action Plan for Goal
<p>The Director of Public Works has been assigned the task of developing and signing the Policy. Everyone else is moving along on their tasks, but the Director seems to be putting his task off. His commitment to the EMS is suspect.</p>	<p>Expand Director awareness Win Director to EMS Team awareness</p> <p>Get director to sign</p>	<ol style="list-style-type: none"> 1. NBP workshop 2. Handholding awareness-take director to field 3. Time & appreciate-solicit Director's input 4. Value Director's decision 5. Awareness- increase Directors awareness 6. Time-Prepare a draft policy for Director's review & approval

EXERCISE 2. DEALING WITH CHALLENGES – Group 3

<i>The Challenge</i>	Describe the Solution/Goal	Develop Step-Wise Action Plan for Goal
<p>The Director of Water/Wastewater in charge of budgets was initially in favor of the EMS effort, and even authorized sending three managers to a workshop. However, as details emerge on what the EMS requires, the Director begins to have serious concerns over the cost of developing and maintaining the EMS.</p>	<p>Bring Director back into supporting EMS by showing the benefits of doing EMS outweigh the costs</p>	<ol style="list-style-type: none"> 1. Present experiences of other agencies who have implemented a successful EMS, with their benefits. 2. Present information on horror stories on biosolids reuse nationally, TO SHOW POTENTIAL COST IF WE DON'T PARTICIPATE 3. In most EMS practices the agency is already in place 4. Treat as a project to be managed, identify track cases, post Gantt chart w/milestones 5. EMS Core Team meet with Director to review his concerns. Invite Director to serve EMS Core Team, attend meetings

EXERCISE 2. DEALING WITH CHALLENGES – Group 4

<i>The Challenge</i>	Describe the Solution/Goal	Develop Step-Wise Action Plan for Goal
<p>As the EMS Coordinator you provide an initial “EMS Awareness” class to the participants. However, as you go around seeking support to build the EMS, it becomes obvious that less than 10% of the training was remembered, and folks don’t have a clue. How do you reinforce training in EMS benefits and concepts?</p>	<p>Increase training retention</p> <p>Reassess your training program and materials, are they too vague, too detailed, bad time of day, class size, length of class</p> <p>Emphasize benefits of an EMS and how it will improve their jobs in the long run</p>	<ol style="list-style-type: none"> 1. Modify training program based on feedback and repeat 2. Incorporate feedback into revised program so you can adjust as needed

EXERCISE 2. DEALING WITH CHALLENGES – Group 5

<i>The Challenge</i>	Describe the Solution/Goal	Develop Step-Wise Action Plan for Goal
<p>Chief Operator who is set to retire in six months hears about the EMS and isn't very excited about it. You fear this attitude may spill over into rest of the workforce, and need to shore up the buy-in to the EMS.</p>	<p>BUY HIM OUT</p>	

EXERCISE 2. DEALING WITH CHALLENGES – Group 6

<i>The Challenge</i>	Describe the Solution/Goal	Develop Step-Wise Action Plan for Goal
<p>As the EMS Coordinator, you realize that there are unwritten SOPs that manage various elements of the biosolids value chain. The training for these has been through word of mouth. You will need operators' help in writing procedures, setting up training, and formalizing much of the process-yet, the operators are already stretched thin and hate to write SOPs.</p>	<p>Assess what is required for Employee buy-in by involving them in writing the SOPs</p> <p>Standardize and control documentation</p> <p>Develop a reward system or acknowledgement program</p>	<ol style="list-style-type: none"> 1. Develop SOP Procedures and Standard form 2. Training to develop understanding throughout 3. Document and archive for new employees

EXERCISE 2. DEALING WITH CHALLENGES – Group 7

<i>The Challenge</i>	Describe the Solution/Goal	Develop Step-Wise Action Plan for Goal
<p>There have been efforts in the past to hold meetings to educate the public on biosolids, and nobody showed up. You question whether these efforts do any good, yet the EMS requires public outreach and you need to show progress in this area.</p>	<p>Get more public involvement</p> <p>Change time or days</p> <p>Find out who will be more interested in your project</p> <p>Public hasn't heard about it</p>	<ol style="list-style-type: none"> 1. Go where the public is 2. Find out what different group meeting times are and ask to participate 3. Contact professional or community groups with these interests 4. More or better advertising of your meetings 5. Paper, Radio, E-Mail groups 6. Present at Civic groups

EXERCISE 2. DEALING WITH CHALLENGES – Group 8

<i>The Challenge</i>	Describe the Solution/Goal	Develop Step-Wise Action Plan for Goal
<p>The EMS requires that contractors be involved in the EMS. As you consider the contractors, you believe some might go along, but you expect resistance from others. But you need to involve all the contractors.</p>	<p>100% contractor involvement (yes if it creates more work)</p>	<ol style="list-style-type: none"> 1. Training requirement 2. Contract inclusion-language 3. Not an EMS 4. But required to participate 5. Develop Training program 6. Contract compliance 7. Requires their participation 8. Encourage their own EMS

EXERCISE 2. DEALING WITH CHALLENGES - Group 9

<i>The Challenge</i>	Describe the Solution/Goal	Develop Step-Wise Action Plan for Goal
<p>The EMS public participation seems to be going well, but one stakeholder begins asking for information beyond reason. This person, who has a bad history with the utility, might be using the public outreach as a way to hassle the biosolids effort. You need to deal with this person in a way that doesn't reflect poorly on the public outreach efforts.</p>	<p>Identify his problem or issues</p> <p>Resolve the issue to gain his support/trust as much as possible</p>	<ol style="list-style-type: none"> 1. Have the EMS coordinator or someone he's comfortable with meet with him to discuss his issues and find a compromise 2. Try to educate him on the process, if he is not understanding our goal 3. Follow up with a meeting of all the stakeholders to include that person in a broader scope and to encourage communication whether positive or negative

EXERCISE 2. DEALING WITH CHALLENGES – Group 10

<i>The Challenge</i>	Describe the Solution/Goal	Develop Step-Wise Action Plan for Goal
<p>As the EMS Coordinator, you hold a meeting and assign tasks to various personnel to build the EMS framework. As you monitor progress, you find that hardly anyone seems to be following through, citing competing responsibilities. You're starting to worry about your deadlines for getting the EMS together.</p>	<p>Complete EMS tasks</p>	<ol style="list-style-type: none"> 1. Spread work around as much as possible to avoid misleading 2. Show program connection so all know how their pieces fits into the whole-team work 3. Utilize expertise as necessary 4. Integrate w/other routines to avoid re-invention 5. Manager meets w/team to create priorities 6. Assign deadlines as each task is completed with endpoint in mind 7. Reward successes 8. Use "champion" as much as possible 9. Use positive motivation

Exercise 3 — Policy

This exercise will be conducted at your round table. We requested from you in a letter a few weeks ago to bring a draft biosolids policy to the class.

1. Compare the NBP expectations of an EMS policy with the Madison, Wisconsin policy.
2. Compare your policy to the NBP expectations of an EMS policy.
3. Appoint a spokesperson to report out to the class on one of the policies (i.e. does it meet the NBP expectations).

Exercise 4 — Critical Control Points and Operational Controls

This exercise will be conducted at your round table.

Review the biosolids value chain as outlined in the Manual of Good Practice Appendix F (in Section 5 of your handouts).
Review the Madison EMS Element 3: Critical Control Points (in Section 5 of your handouts).

1. Select a facility from your group.
2. Identify the CCPs at this facility.
3. Identify Operational Controls (OCs) and standard operating procedures for these CCPs.
4. Identify Environmental Impacts (EIs) of these CCPs.
5. Select a presenter.
6. Present your CCPs/OCs/EIs to the group.

Exercise 4 — Critical Control Points and Operational Controls

Biosolid Value Chain	Critical Control Points	Operational Controls (select up to 3)	Environmental Impact

Exercise 4a – Identification of Legal and other Requirements

Federal Regulations

- 503
- SARA Title III
- RCRA
- CAA
- DOT

State Regulations

- Tanks State compost
- Aquifer protection
- Air quality
- Regional water quality
- Operator certification
- Liquid industrial waste hauler
- Soil amendment rule
- Residuals management plan
- Stormwater management
- Sewer system overflows

Exercise 5 — Public Participation and Communication

- Identify input mechanisms. Briefly describe, assign responsibility and indicate how records of this input are maintained.
- Identify output mechanisms. Briefly describe, assign responsibility and indicate how records of this output are maintained.
- Review list of interested parties. Add additional parties if applicable.
- Transfer input and output mechanisms to worksheet.
- Identify which input and output mechanisms are appropriate for each of the interested parties.

Exercise 5 — Public Participation and Communication

Interested parties	Input mechanisms								Output mechanisms							
Facility neighbors																
Land application site neighbors																
Environmental Groups																
Watershed, wildlife, sportsman groups																
Farmers																
Land application site owners																
State regulatory officials																
Co. and State Health Dept.																
EPA																
Local Elected Officials																
Media																

	Input mechanisms								Output mechanisms							
Rate Payers																
Developers																
Academia																
Conservation Districts																
Landscape Professionals (gardeners club)																
NBP-WEF-AMSA																
Community Leaders/ Community Groups																
Communities affected by transport routes																

Exercise 6 — Conducting EMS Awareness Training

The class will be divided into three groups (I, II, III). The groups will be assigned the following topics.

Group I – What is a Biosolids EMS?

Group II – Why Implement a Biosolids EMS?

Group III – What is your Role in the EMS Process?

Each group will be given a CD with PowerPoint (PP) slides. Printed copies are available in your manual. Please note that these are only examples of PP slides. You may modify them as you see fit (time permitting). There should be at least one lap-top with the latest version of PP installed on each group's computer.

Specific tasks for each group:

1. Write at least one but no more than two objectives for your training presentation.
2. Assume your audience to be wastewater operators from all parts of your treatment facility.
3. Prepare a ten minute presentation utilizing the slides provided and/or those you modified.
4. Decide on the method for delivery of the training. (i.e. lecture, guided discussion, etc.)
5. Appoint one or more presenters.
6. Present your material to the entire group.

Appendix D: End of Day 1 Comments

- Good policy discussion
- Good schedule
- Examples good
- Appendix F beneficial
- Good networking
- Good manual/procedures
- Exercises were a plus

Appendix E: Evaluations

COURSE EVALUATION Environmental Management Systems (EMS) 201 May 24-25, 2005

PROGRAM	Poor					Excellent					Overall Avg.
	1	2	3	4	5	4	5	4	5		
Course content met expectations											4.00
Level of content was appropriate											4.06
Course was relevant to job needs											4.21
Time allocated for coverage of topics											3.82
Effectiveness of audio visuals											4.00
Usefulness of course materials/handouts											4.39
Accomplishment of learning objectives											4.16
PRESENTATIONS											
Interesting											3.78
Responses to questions											4.24
Emphasis on important topics											4.22
Clarity of presentation											3.97
Enthusiasm and energy											3.67
Knowledge of the subject											4.45
Group discussions											4.12
Breakout sessions											4.00
OVERALL RATING OF COURSE											
Course											4.15
Instructor(s)											4.06
Organization of program											4.42
Facility used/meeting room											4.52
Break functions/lunch functions											4.39
Hotel accommodations											4.61

WRITTEN COMMENTS

1. General Comments

- A. Was apprehensive of the program but I am now optimistic that I can meet the EMS challenge.
- B. Info was very helpful. Meeting the others from the phone conference with Corky was good.
- C. While it is necessary to review and cover general information, it should be kept to a minimum. The training should reflect the core need to develop an EMS program. Give more practical examples.
- D. Helped me get a better grip on EMS (I missed 101).
- E. Well planned and organized. Efficient use of time.
- F. Air was too cold in meeting room.
- G. Program was well thought out. Hand out material was useful. Rotating instructors brought variety into the presentation. The workshop produced information that will be used directly in the development of the site's EMS.
- H. Overall-very good course.
- I. Overall improvement from session 1. I enjoyed the course.
- J. Good job.
- K. The course clarified procedures for implementation of an EMS system and what is expected to pass an audit.
- L. Presentation would connect more directly with me if you included a professional wastewater employee as part of your training.
- M. Less reading manuscript more telling us what slides are promoting.
- N. Very useful manual with plenty of examples and detached objectives.
- O. Some of the topics seem to have been rushed. I understand some of that was due to the introduction needed for the new people.
- P. I enjoyed this workshop allot more than the first one. Agenda well developed we kept to it.
- Q. I enjoyed going over the critical contract points and felt more time should have been dedicated. I would of like to see the entire video, could of cut the training session short and played the video.
- R. Instructors were well prepared.
- S. Overall a very good presentation, especially going over the elements step by step.

2. Describe the most valuable portion of the course.
 - A. The examples such as the Madison data was extremely helpful.
 - B. Explanation of elements and what is required by the NBP was very helpful.
 - C. The practical exercises-these help up develop our own EMS program.
 - D. Printed course material. Examples of actual elements used by other utilities. Re-iterating that we don't have to make it too hard.
 - E. The presentation and notebook are excellent.
 - F. General knowledge and how to set up the program. Training and public was also good.
 - G. Comparing work product from other agencies EMS to expectations of the element. Also, ability to talk to other agency reps. To discuss issues of interest.
 - H. Break out sessions.
 - I. Finding a base starting point. It's very important to me that the process is simplified and standardized and communicated.
 - J. Exercises. Learning what others are doing.
 - K. I liked the presentations by the group. Group projects brought everyone together.
 - L. Back up with problems.
 - M. Clarification of NBP expectation and thereby defining a course of action to meet audit requirements.
 - N. Covered our developmental problems.
 - O. Going through each element.
 - P. Training groups (awareness).
 - Q. Going over each element and their tables.
 - R. Examples from Madison and tips on how to be an effective trainer.
 - S. Book break out sessions.
 - T. Hands on exercises. Got us moving around to stay alert and awake. Also allowed us to put into practice what was being presented.
 - U. Manual & exercises.
 - V. Element examples. It will help me to have an example of what is needed for each element.
 - W. Detail on attacking the elements.
 - X. Critical contract points needed more examples though.
 - Y. Detailed NBP expectations by element. This is helpful.
 - Z. Going over elements in detail, clarified each element for me.
 - AA. The examples of real EMS elements. The presentation exercise was very valuable.

3. Describe the least valuable portion of the course.
- A. The 101 review. Exercise 5 was not helpful.
 - B. Doing the training exercise.
 - C. Dry presentation often. At times appeared to just be reading material out loud.
 - D. On the exercises it would be nicer if only one or two groups were polled. Most of the time all of the groups have so many answers in common that repeating 8 times is redundant.
 - E. Puzzle at the beginning.
 - F. I'd recommend that you consider discussing elements 3 & 10 as a group. Present an example treatment plant flow diagram. Then present the value chain. The group would then walk through together identifying Critical Control Points. It's important for all to come away with a good understanding of CCP. Since it forms the basis of developing our Operational Controls.
 - G. Do not rush through the material. The least valuable was the puzzle exercise. What is the first step of the process? Is it the assessment questionnaire, is it the facility assessment, is it the letter of understanding, is it the biosolids management policy development? What is the first step, second step, third step? I haven't heard any standardized procedure guidance yet. Why isn't this communicated?
 - H. The training exercise.
 - I. Introductions during class time.
 - J. Lack of mentoring during exercises.
 - K. I think too much dependence on power point.
 - L. The review after Day 1.
 - M. Talking about what we thought about the first day's class.
 - N. Some repeat of 101 on breakout.
 - O. Emphasis on general directions at the expense of specific content/experience.
 - P. Oral feedback. Guess it is valuable to presenters because you don't always get written feedback but seemed repetitive and time consuming for attendees.
 - Q. Amount of time spent on doing a presentation.
 - R. Not being able to communicate during the communication session.
 - S. None
 - T. End of the first session when we had to say what we liked or did not like. Short & sweet introductions at the start of the session was all that was needed.
 - U. Introductions of everyone at beginning.
 - V. Re-selling each of us on the value of this program reviews are good but need to be shortened, then more forward into how to complete the documents.
 - W. Much of the info seemed to be more on being a good manager rather than EMS steps.