

South Carolina
Department of Health and Environmental Control

EMS in Permitting

January 11&12

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EMS in Permitting

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January 11
EMS in Permitting

- 1:30 PM Pretest
- 2:00 Terminology: EMS and Permits
- 2:30 Detailed EMS Element Review
- 4:00 The Audit Structure
- 4:30 Questions and Adjourn

Objectives of the Training

- Review the ISO 14001:2004 EMS in detail to gain elements and provide a better understanding how each element fits in managing permit requirements
- Provide an understanding of EMS auditing techniques and the relation with Permit evaluations
- Define the EMS auditing process
- Provide an understanding of how an EMS manages regulatory permitting requirements.
- Prepare DHEC evaluators for their roles and responsibilities in evaluating EMS permits

**January 12
EMS in Permitting**

- 2:00 Evaluating EMS Procedures and the link to the Permit (Participating Facilities)
- 3:00 Discussion of Exercise
- 3:30 Writing Nonconformance
- 4:00 The Audit Report and Corrective Actions
- 4:30 Questions and Post Test

**January 12
EMS in Permitting**

- 8:30 AM Developing the Audit Plan
- 9:00 Comparing the EMS and Permitting Requirements
- 10:30 Documentation Review
- 11:00 The EMS and Permitting Checklist
- 12:00 Lunch
- 1:00 Verifying Documentation (is the organization doing what it says its doing)

Training Format

- This is not going to be a “formal” training session
- It will be a workshop/training time
- It will be an exchange of information
- Please ask questions anytime and share your experiences

What is an EMS?

- ISO 14001:2004(E)
 - An EMS is part of an organization’s management system used to develop and implement its environmental policy and management its environmental aspects.

Welcome to:

EMS in Permitting

Exercise

- Team members will review the term definitions as provided in the ISO 14001:2004 standard and present the definition to the class.
- Teams will compare ISO 14001 terms and definitions to terms and definitions of permits
- Discussion of the terms within an EMS
- Discuss the comparison of EMS and Permitting terminology

ISO 14001:2004(E) Definitions

- 3.1 Auditor
- 3.2 Continual Improvement
- 3.3 Corrective Action
- 3.4 Document
- 3.5 Environment
- 3.6 Environmental Aspect
- 3.7 Environmental Impact
- 3.8 Environmental Management System

Definitions (cont.)

- 3.9 Environmental Objective
- 3.10 Environmental Performance
- 3.11 Environmental Policy
- 3.12 Environmental Target
- 3.13 Interested Party
- 3.14 Internal Audit
- 3.15 Nonconformity
- 3.16 Organization

Definitions (cont.)

- 3.17 Preventive Action
- 3.18 Prevention of Pollution
- 3.19 Procedure
- 3.20 Record

The ISO 14001:2004 4. Environmental Management System Requirements

4.1 General Requirements

- The organization shall establish, document, implement, maintain and continually improve an environmental management system with the requirements of this International Standard and determine how it will fulfill these requirements.
- The organization shall define and document the scope of its EMS

4.2 Environmental Policy

- Top Management shall define the organization's environmental policy and ensure that within the defined scope of its EMS, it:
 - a) is appropriate to the nature, scale and environmental impacts of its activities, products or services;
 - b) includes a commitment to continual improvement and prevention of pollution;

Scope

- The ISO 14001 standard is applicable to any organization that wishes to:
 - Establish, implement, maintain, and improve an EMS
 - Assure conformity with its environmental policy
 - Demonstrate conformity with ISO 14001:
 - Self determination and self-declaration
 - Interested parties, e.g., customers
 - Confirmation of self-declaration by an external party
 - Seeking certification/registration by an external party

EMS Scope

- Enables organization to develop and implement its policy and objectives.
 - Takes into account:
 - Legal requirements and other requirements
 - Information about significant environmental aspects
 - Those which the organization can control and have an influence
 - The standard does not state specific environmental performance criteria

4.2 Policy

- c) includes a commitment to comply with applicable legal requirements and with other requirements to which the organization subscribes, which relates to its environmental aspects;
- d) provides the framework for setting and reviewing environmental objectives and targets;

4.2 Policy

- e) is documented, implemented and maintained
- f) is communicated to all persons working for or on behalf of the organization, and
- g) is available to the public

4.3 Planning

4.3.1 Aspects

- The organization shall establish and maintain a procedure(s)
 - a) to identify the environmental aspects of its activities, products, or services within the defined scope of the EMS that it can control and those that it can influence taking into account planned or new developments, or new or modified activities, products and services, and

Exercise

- Show examples of Aspects and Impacts
- Each team will come up with five significant aspects within their work place.
- Compare with significant aspects provided by Charleston Air Force Base and Milliken (Dewey Plant)

Aspect Considerations

- Operating Units:
 - Technological Options
 - Emissions to Air
 - Releases to Water
 - Waste Management
 - Land contamination
 - Use of Raw Materials and Natural Resources
 - Previous Incidents
 - Local Environmental and Community Issues

4.3.1 Aspects

- b) to determine those aspects that have or can have significant impact(s) on the environment (i.e. significant environmental aspects).
- The organization shall document this information and keep it up to date.
- The organization shall ensure that the significant environmental aspects are taken into account in establishing, implementing and maintaining its EMS

4.3.2 Legal and Other requirements

- The organization shall establish and maintain a procedure to
- a) identify and have access to the applicable legal requirements, and other requirements to which the organization subscribes related to its environmental aspects, and
- b) To determine how these requirements apply to its environmental aspects.

4.3.2 Regulatory Requirement

- The organization shall ensure that these applicable legal requirements and other requirements to which the organization subscribes are taken into account in establishing, implementing and maintaining its EMS

These include, federal, State and local codes and regulations, Industry accepted standards and practices, voluntary agreements with other authorities, etc.

4.3.3 Objectives, targets and programmes

- The organization shall establish, implement and maintain documented environmental objectives and targets, at relevant functions and levels within the organization.
- The objectives and targets shall be measurable, where practicable, and consistent with the environmental policy, including the commitments to prevention of pollution, to compliance with applicable legal requirements and with other requirements to which the organization subscribes, and to continual improvement.

4.4 Implementation and Operation
 4.4.1 Resources, roles, responsibility authority

- Management shall ensure the availability of resources essential to establish, implement, maintain and improve the EMS. Resources include human resources and specialized skills, organizational infrastructure, technology and financial resources.
- Roles, responsibilities and authorities shall be defined, documented and communicated in order to facilitate effective environmental management.

4.3.3 Objectives, targets and programs

- The objectives and targets shall establish, implement and maintain a program(s) for achieving its objectives and targets. Programs shall include:
 - Designation of responsibility for achieving objective and targets at relevant functions and levels of the organization, and
 - The means and time-frame by which they are to be achieved.

4.3.3 Objectives, targets and programs

- When establishing and reviewing its objectives, an organization shall take into account the legal and other requirements, to which the organization subscribes, and its significant environmental aspects. It shall also consider its technological options, its financial, operational and business requirements and the views of interested parties.

4.4.1 Resources, roles, responsibility authority

- The organization's top management shall appoint a specific management representative(s) who, irrespective of other responsibilities, shall have defined roles, responsibilities and authority for:
 - (a) ensuring that EMS requirements are established, implemented and maintained in accordance with this International Standard (ISO 14001:2004).

4.4.1 Resources, roles, responsibility authority

- (b) reporting to top management on the performance of the EMS for review, including recommendations for improvement.

4.4.2 Competence, training and awareness

- The organization shall ensure that any person(s) performing tasks for it or on its behalf that have the potential to cause a significant environmental impact(s) identified by the organization is (are) competent on the basis of appropriate education, training or experience, and shall retain associated records.

4.4.2 Competence, training and awareness

(c) their roles and responsibilities in achieving conformity with the requirements of the EMS, and

(d) the potential consequences of departure from specified operating procedures.

4.4.2 Competence, training and awareness

a) the importance of conformity with the environmental policy and procedures and with the requirements of the EMS,

b) the significant environmental aspects and related actual or potential impacts associated with their work, and the environmental benefits of improved personal performance,

4.4.2 Competence, training and awareness

- The organization shall identify training needs associated with its environmental aspects and its EMS. It shall provide training or take other action to meet these needs, and shall retain associated records.
- The organization shall establish, implement and maintain a procedure(s) to make persons working for it or its behalf aware of:

4.4.3 Communication

- With regard to its environmental aspects and EMS, the organization shall establish and maintain a procedure(s) for:
 - (a.) internal communication between the various levels and functions within the organization
 - (b.) receiving, documenting and responding to communication from external interested parties

4.4.3 Communications

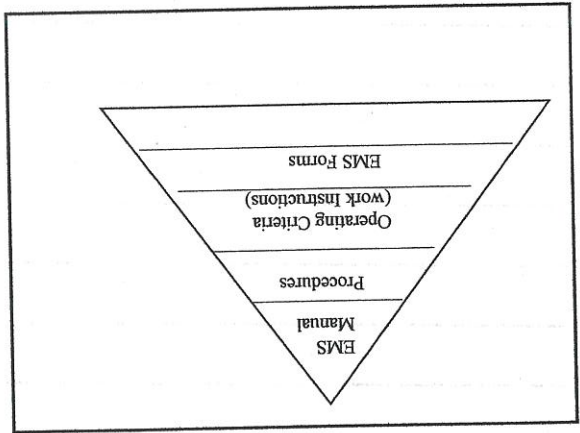
- The organization shall decide whether to communicate externally about its significant environmental aspects, and shall document its decision.
- If the decision is to communicate, the organization shall establish and implement a method(s) for external communication.

4.4.4 Documentation

- The EMS shall include:
 - a) environmental policy, objectives and targets
 - b) description of the scope of the EMS
 - c) description of the main elements of the EMS and their interaction, and reference to related documents
 - d) documents, including records, required by ISO 14001:2004, and

4.4.4 Documentation

e) documents, including records, determined by the organization to be necessary to ensure the effective planning, operation and control of processes that relate to its significant environmental aspects.



4.4.5 Control of Documents

- Documents required by the EMS and by ISO 14001:2004 shall be controlled. Records are a special type of document and shall be controlled in accordance with the requirements given in 4.5.4
- The organization shall establish, implement and maintain a procedure(s) to:
 - a) approve documents for adequacy prior to issue,
 - b) review and update as necessary and re-approve documents,

4.4.5 Control of Documents

- c) ensure that changes and the current revision status of documents are identified,
- d) ensure that relevant versions of applicable documents are available at points of use,
- e) ensure that documents remain legible and readily identifiable.

4.4.5 Control of Documents

- f) ensure that documents of external origin determined by the organization to be necessary for the planning and operation of the EMS are identified and their distribution controlled, and
- g) prevent the unintended use of obsolete documents and apply suitable identification to them if they are retained for any purpose.

4.4.6 Operational Control

- The organization shall identify and plan those operations that are associated with the identified significant environmental aspects consistent with its policy, objectives and targets, in order to ensure that they are carried out under specified conditions, by:
 - a) establishing, implementing and maintaining a documented procedure(s) to control situations where their absence could lead to deviation from the environmental policy, objectives and targets, and

4.5 Checking

4.5.1 Monitoring and Measurement

- The organization shall establish, implement and maintain a procedure(s) to monitor and measure, on a regular basis, the key characteristics of its operations and activities that can have a significant impact.
- The procedure shall include the documenting of information to monitor performance, applicable operational controls and conformity with objectives & targets.

4.5.1 Monitoring and Measurement

- Calibrated or verified monitoring and measuring equipment is used and maintained
- Records associated with this process shall be retained

4.5.2 Evaluation of Compliance

- Being consistent with its commitment to compliance, the organization shall establish, implement and maintain a procedure(s) for periodically evaluating compliance with applicable legal requirements.
- The organization shall evaluate compliance with other requirements to which it subscribes. The evaluation in 4.5.2.1 can be combined with 4.5.2.1
- The organization shall keep records of the results of the periodic evaluations for legal and other requirements

4.5.3 Nonconformity, corrective action and preventive action

- Actions taken shall be appropriate to the magnitude of the problems and the environmental impacts encountered
- The organization shall ensure that any necessary changes are made to EMS documentation

4.5.3 Nonconformity, corrective action and preventive action

- (c) evaluating the need for action(s) to prevent nonconformity(ies) and implementing appropriate actions designed to avoid their occurrence
- (d) recording the results of corrective action(s) and preventive action(s) taken, and
- (e) reviewing the effectiveness of corrective and preventive actions taken

4.5.3 Nonconformity, corrective action and preventive action

- The organization shall establish, implement and maintain a procedure(s) for dealing with actual and potential nonconformity(ies) and for taking corrective and preventive action.
- The procedure shall define requirements for:
 - (a) identifying and correcting nonconformity(ies) and taking action(s) to mitigate their environmental impacts
 - (b) investigating nonconformity(ies), determining their cause(s) and taking actions in order to avoid their recurrence

4.5.4 Control of records

- The organization shall establish and maintain records as necessary to demonstrate conformity to the requirements of its EMS and of ISO 14001:2004, and the results achieved.
- The organization shall establish, implement and maintain a procedure(s) for identification, storage, protection, retrieval, retention and disposal of records
- Records shall be and remain legible, identifiable and traceable

4.5.5 Internal Audit

- The organization shall ensure that internal audits of the EMS are conducted at planned intervals to:
 - (a) determine whether or not the EMS
 - 1) conforms to planned arrangements for environmental management including the requirements of ISO 14001:2004.
 - 2) has been properly implemented and is maintained
 - (b) provide information on the results of audits to Management

4.5.5 Internal Audit

- The Audit program(s) shall be planned, established, implemented and maintained by the organization, taking into consideration the environmental importance or the operation(s) concerned and the results of previous audits

Why Audit?

- Ensure conformance with company policies, systems and procedures
- Assess the effectiveness of environmental activities
- Evaluate the effectiveness of the EMS implementation
- Promote understanding among staff, manufacturing and other departments
- Communicate to management

EMS Audit

Systematic and documented verification process of objectively obtaining and evaluating evidence to determine whether an organization's environmental management system conforms to the environmental management system audit criteria set by the organization, and for communication of the results of this process to management

4.5.5 EMS Audits

- Audit procedure(s) shall be established, implemented and maintained that address:
 - The responsibilities and requirements for planning and conducting audits, reporting results and retaining associated records
 - The determination of audit criteria, scope, frequency and methods
- Selection of auditors and conduct of audits shall ensure objectivity and impartiality of the audit process

**Environmental Auditing
ISO 19011**

- Must be planned
- Must establish facts
- Must be objective/based on objective evidence
- Must be executed competently
- Must be reported constructively to achieve maximum improvement

4.6 Management Review

- Top management shall review the organization's EMS, at planned intervals, to ensure its continuing suitability, adequacy and effectiveness. Reviews shall include assessing opportunities for improvement and the need for changes to the EMS, including the environmental policy, objectives and targets.
- Records of the management reviews shall be retained

4.6 Management Review

- Input to management reviews shall include:
 - a) Results of internal audits and evaluations of compliance with legal and other requirements
 - b) Communication(s) from external interested parties, including complaints
 - c) The environmental performance of the organization
 - d) The extent to which objectives and targets have been met

Comparing EMS requirements with Permit requirements

- Exercise
 - Working with the EMS and Permit comparison chart of the permit you have been assigned, discuss with your team how the EMS requirements just reviewed fit with the management requirements of a permit.
 - Each team will appoint a team member to present the group consensus.

4.6 Management Review

- The outputs from management reviews shall include any decisions and actions related to possible changes to environmental policy, objectives targets and other elements of the EMS consistent with the commitment to continual improvement.

4.6 Management Review

- e) Status of corrective and preventive actions
- f) Follow-up actions from previous management reviews
- g) Changing circumstances, including developments in legal and other requirements related to its environmental aspects, and
- h) Recommendations for improvement

EMS AUDITING

Audits

- Used by an organization to gain confidence in their system
- Evaluates if documentation is followed in practice
- Identifies weaknesses
- Is a requirement of ISO 14001:2004

Auditing Requirements

- Requirements must be verified
- Auditable statements must be identified
- Both are difficult to recognize
- In ISO 14001 "shall" signals a requirement
- All "shall"s must be addressed

Audit Types

- Documentation or System Audit (stage 1)
- Pre-Registration Audits (pre-assessments)
- Conformance Audit (stage 2)
- Follow-up Audits
- Surveillance Audits
- Compliance Audits
- Process Audits

Auditing is...

- Comparing documents for consistency
- Comparing practice to documented requirements

Say what you do...do what you say

Exercise

- Participants will count the shalls within the ISO 14001:2004.
- Participants will highlight all areas of the standard that requires documentation
- Begin with 4.1 of the Standard

**Documentation or System Audit
Stage 1**

- Comparing documents for conformance to a specific criteria or requirement
- Comparing two or more documents for consistency

Preliminary Documentation Review

Auditors should review the organization's documentation to determine if all appropriate documentation exists and meets the EMS criteria

Conformance Audit (Stage 2)

- On site
- After the documentation audit a conformance audit is carried out to seek objective evidence in regard to auditable statements found within the organization's documentation.
- Usually this consist of interviews with the organization's personnel, reviewing records, seeking objective evidence that the system has been documented.

Process Audits

- Process audits review the inputs, process and outputs that are being performed in relation to procedures, instructions, specific requirements.
- For example, in the case of Dayco, the significant aspect was identified through solvents and VOCs.
- In the Dayco example, process controls are identified in relation to the significant aspects of solvents and VOCs.

Compliance Audits

- Compliance audits are conducted to determine if the organization is in compliance with regulatory requirements.
- In 4.5.2 of ISO 14001, an evaluation of compliance is a compliance audit. In the evaluation of compliance requirement of ISO 14001 requires the organization to provide evidence that an evaluation of compliance has been conducted, and corrective actions and preventive actions are in place for those areas where potential noncompliance has been identified.

Follow-up and Surveillance Audits

- Follow-up audits are usually conducted after a corrective action has been taken on a nonconformance.
- Surveillance audits are those audits conducted by a certification body. These audits are usually conducted every six months or annually according to the requirements of the certification body.

Requirements for an EMS Audit

- Audit focuses on clearly defined and documented subject matter
- An audit is only undertaken if:
 - The audit criteria is established
 - There is sufficient and appropriate information about the subject matter of the audit
 - There are adequate resources to support the audit process
 - There is adequate cooperation from the auditee

Exercise

- Read section 4.5.5 of ISO-14001
- List all the requirements

Exercise

- Compare Audit procedure of the Charleston AFB and Milliken Dewey Plant with requirements of 4.5.5 in ISO 14001
- Is it in conformance?

Note

- Reminder
All audits must be performed by auditors who are independent of the area being audited.
The auditor must be free of biases, preconceived opinions and judgments.

An EMS audit...

- Is essential to the continual improvement of the EMS.
- Requires a well developed audit program(s)
- Depends on a structured audit plan
- Requires competent auditors

An EMS audit is....

- A requirement of the standard
- A key ingredient to the continuous improvement cycle
- A major tool used to determine conformance and effectiveness to self-imposed requirements

Audit Process



REVIEW DOCUMENTS Prepare for audit by reading the appropriate documentation

AUDIT PREPERATION Prepare a check list

OPENING MEETING Conduct the opening meeting

GATHER EVIDENCE Conduct the conformance audit

CLOSING MEETING Document the audit findings and present them at the closing meeting

The Auditor's Role

- The role of the auditor is to look at the organization's systems and procedures and determine if they are in conformance with the criteria being audited.
- Criteria can be contract requirements, organization systems and procedures, regulatory requirements and/or the standard requirements.

Auditor's Role includes

- To examine documentation to determine its conformance to requirements
- To verify auditable statements to find objective evidence of conformance to documentation

- Audit Process**
- Create an audit plan
 - Create a check list
 - Conduct opening meeting
 - Conduct an audit
 - Document findings
 - Conduct closing meeting
 - Submit an audit report

AUDITS

- Auditor Qualifications**
- Trained
 - Independent
 - Open minded
 - Ability to communicate (verbal and written)
 - Knows how to listen
 - Ability to manage time effectively
 - Works well with people

Working Documents

- The following documents will facilitate the audit team's auditing :
 - Procedures to be followed
 - Forms for documenting objective evidence
 - Check list of questions
 - Meeting topics
 - Meeting record format

Planning the Audit

Planning is the best strategy to improve the odds of success in any endeavor

Planning the Audit

- Follow your documented procedure for conducting audits
- Establish audit team and audit team leader
- Establish responsibilities
- Develop an audit plan
- Develop an audit schedule
- Communicate with the auditee

Audit Plan

- Scope of the audit
- Date
- Time
- Department(s)
- Auditors
- Auditee

Audit File should include

- A copy of the audit program
- Copies of the procedures to be audited
- The audit date, location, and daily schedule
- Audit team members and the areas they will audit
- All scheduled meetings, and areas to be audited

Planning the Audit

- The most critical step in the audit process is the planning
- Good planning and preparation is essential for all audits
- It eliminates costly mistakes and wasted time
- It demonstrates professionalism

Example Audit Schedule

- 8:00 - 8:30 Auditor Preparation
- 8:30 - 9:00 Facility Tour
- 9:00 - 9:30 Opening Meeting
- 9:30 - 10:30 Management Review (4.6)
- 10:30 - 11:30 Compliance Evaluation (4.5.2)
- 11:30 - 12:30 Working Lunch
- 12:30 - 4:30 Operational Control (4.4.6)
- 4:30 - 5:30 Auditor work time
- 5:30 End-of-day meeting

Remember

- Communicate the audit schedule to the people who will be audited

Preparing for the Audit

- Read the appropriate documentation
- Determine conformance requirements
- Generate on-site audit questions
- Create an audit checklist

Audit Checklist

- Checklist... a listing of statements/questions that should uncover objective evidence of conformance
- Each auditor should prepare their own
- Should only be used as a guide

Checklists

Key to a Successful Audit

Conformance to ISO
14001:2004
Conformance is dictated by the
Policy
Procedures
Work Instructions
Records

Audit Checklist

- Adds structure to the audit
- Helps manage time
- Assures all critical issues are addressed
- Documents reference requirements
- Maintains audit pace
- Creates record for future audits

Audit Checklist for Conformance

- **CLOSED**
 - "Do you have a list of significant aspects"
 - "Do you have audit records?"
 - "Do you have a procedure?"
- **OPEN**
 - "Describe your auditing process."
 - "How do you.....?"
 - "Who is.....?"
 - "What is.....?"
 - "May I see.....?"

Checklist Questions

- All audit questions should lead to evidence of conformance or nonconformance

Exercise (cont)

- How did the procedures and expected environmental evidence assist in managing an environmental regulation?
- How does an EMS conformance audit compare with a compliance audit?

Exercise

- Prepare for the conformance audit
- Read the procedure
- Develop a checklist from identified auditable statements within the procedure
- List what you would expect them to have as evidence to fulfill the auditable statement

Establishing Checklist Questions

- Read the document carefully
- Determine the intent
- List all the requirements and "auditable" statements
- Select those that support the intent
- Select a sufficient sample to establish conformance or nonconformance to the requirements of the document

Writing a Nonconformance

- Quote the reference (standard, procedure, work instruction)
 - "Procedure 4.5.5 states that all internal auditors working within the organization shall be trained within 30 days of being designated as an internal auditor."
- State the evidence
 - "After review of auditor training records and interviews with auditors on the organization's internal auditors list, it was found that two auditors designated as internal auditors on October 1, 2004 have not been trained."
- State the nonconformance
 - "Auditor training requirements as stated in procedure 4.5.5 have not been met."

Corrective Action

- A corrective action prevents reoccurrence of a nonconformance.
- How does corrective action fit within a compliance audit? (refer to nonconformance corrective action hand-out)
- What is the procedure for corrective action of noncompliance in comparison with a corrective action in a nonconformance?

EMS in Permitting Review

Links to EMS/ISO 14001 Info

- <http://www.fhwa.dot.gov/environment/guidebook/vol2/emspromo.htm>
- <http://www1.faa.gov/programs/en/impact/13148.doc>
- <http://www.envron.sc.edu/EMS%20introduction.htm>
- <http://ISO14000.com>

Review

- The EMS is a management tool that supports regulatory compliance
- A conformance audit and compliance audit are two types of audits
- Nonconformance found within the EMS could lead to noncompliance
- Corrective actions for nonconformance found within the EMS decrease recurrence of the nonconformance

Review

- Permit contents have similar requirements as ISO 14001:2004 EMS elements
- EMS auditing techniques and the auditing process ensures the system (4.1) has been effectively implemented
- Compliance inspectors trained in EMS can better understand how the organization manages regulatory permitting requirements.
- An EMS auditor should understand regulatory requirements and have knowledge of permitting

Questions/Comments

POST TEST
