Environmental Management Systems 101

January 11, 2006

D H E C
PROMOTE PROTECT PROSPER
South Carolina Department of Health and Environmental Control

UNIVERSITY OF SOUTH CAROLINA

Introduction to EMS in DHEC

- Welcome to EMS 101
- The EMS training initiative:
  - EPA is exploring the potential connection between environmental management systems (EMS) and environmental permitting and regulation.
  - On April 12, 2004, EPA's Deputy Administrator released a Strategy for Determining the Role of Environmental Management Systems in Regulatory Programs

EMS in DHEC (cont)

- The EMS Strategy for studying EMS potential connection and determining whether considering EMS in permitting and regulatory programs can improve environmental results, reduce regulatory burdens, or bring about other benefits.
- In 2005, DHEC received a grant from EPA for EMS training and research

EMS 101

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EMS 101
Agenda

8:00 AM	Registration/Pretest
8:30	Introductions
9:00	Training Purpose
9:30	History of EMS
10:00	ISO 14001:2004 EMS Elements
10:30	Break
10:45	Continue with ISO 14001
11:30	Case study
11:45	Post Test
12:00	Adjourn

EMS 101 Training Purpose

Familiarize DHEC personnel with the EMS concept and provide an understanding of the role of an EMS in Environmental Permitting

Training Objectives

- Provide an overview of EMS development and the different types of EMS being used
- Learn the difference between EMS conformance and regulatory compliance
- Provide an overview of a structured EMS through reviewing the ISO 14001 EMS.
- Demonstrate how an EMS is used to enhance permit and regulatory program management through an industry case study

An EMS

- A structured framework of environmental management that includes organizational structure, planning activities, responsibilities and authorities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining the organization's environmental policy.

An EMS is a

Management Tool

Role of EMS in Environmental Regulations

- Environmental Management has been ongoing for years due to environmental regulatory requirements
- Industry's first response to environmental regulations was to establish management programs to monitor processes related to environmental regulations

Role of EMS in Environmental Regulations

- Continued development of environmental laws and regulations within the U.S.
- Organizations began developing a system's approach to better manage regulatory compliance
- Through an EMS the organization's environmental impacts were the responsibility of all the organization's employees

Environmental Permits and EMS Comparison

- In comparison:
  - An EMS and Permits both have management elements, including:
    - Requirements to meet criteria
    - Causes and effects of the organization's activities
    - Training for those personnel whose work affects an environmental impact
    - Documentation
    - Communication
    - Monitoring and Measurement
    - Records
    - Inspection and Management Review

A Systems Approach to Environmental Management

- A system constitutes a complex combination of resources integrated in such a manner as to fulfill a designated need.
- The resources are in the form of human beings, materials, equipment, software, facilities, data, etc., combined in an effective manner.

System's Approach (cont)

- As a structured system's approach to environmental management, the EMS reduces the risk of noncompliance
- Therefore, management requirements within environmental permits are enhanced through implementation of the EMS
- Conformance to the EMS assists in staying in compliance with regulatory requirements

Compliance vs. Conformance

- Compliance and non-compliance is used for legal and regulatory requirements
- Conformance and non-conformance are terms used with management system standard requirements

Compliance vs. Conformance

REMEMBER

- An organization is in conformance or out-of- conformance with its *EMS requirements*
- An organization is in compliance or out-of-compliance with its regulatory requirements.

A Structured EMS

- A structured framework for the EMS development began in the late 80's and early 90's.
- Based on the continual improvement of the management system. Plan-Do-Check-Act (PDCA).

EMS Types

- Example of EMS Types:
  - Code of Environmental Management Practices (CEMP) – Developed by EPA
  - ISO 14001 International EMS Standard – Developed by the International Organization for Standardization (ISO)
    - The American National Standards Institute has adopted ISO 14001 as an American Environmental Management System Standard

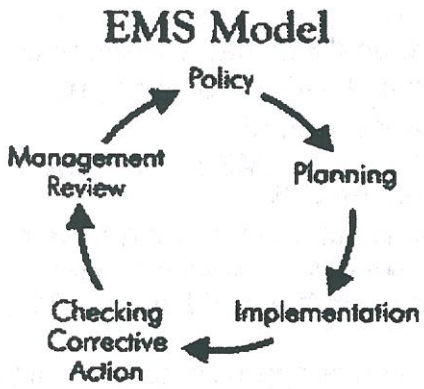
Examples of EMS Types (cont.)

- Industry Specific EMS
  - American Textile Manufacturers Institute's E3 program
  - Chemical Manufacturers Responsible Care RC-ISO 14001
- Military EMS (Mission focus)
  - Air Force Environmental Safety and Occupational Health Management Information System (ESOH MIS)
  - Marines EMS Guide
  - Navy (EMS Guide) and Army are specifically using the ISO 14001:2004 EMS criteria

EMS and PDCA

- An EMS follows the continuous improvement cycle of Plan-Do-Check-Act (PDCA)
- An EMS PDCA cycle begins with the development of the Environmental Policy
- The EMS model most used by organizations is ISO 14001.
- For this training we will focus on the ISO 14001: 2004 EMS.

The PDCA for Continual Environmental Improvement



ISO 14001:2004 EMS

ISO 14001 EMS Standard

- Is an international EMS Standard
- Adopted as an American National Standard through the American National Standards Institute (ANSI)
- Second edition of ISO 14001 was published in 2004
- It is a voluntary standard
- It is the most popular EMS model currently being used globally and in the U.S.
- 88,800 organizations in the world have certified to the ISO 14001. (April 2005, Corporate Risk Management)
- The U.S. is sixth in the world with 4,671 organizations certified
- South Carolina has approximately 81 organizations certified (many more are self-declared)

EMS

ISO 14001:2004

- An EMS is part of an organization's management system used to:
  - Develop and implement the organization's environmental policy
  - Manage the organization's environmental aspects (causes of environmental impacts)

EMS Guiding Principles
ISO 14001 EMS Model has 5 Guiding Principles

Principle 1 - Commitment and Policy

- an organization shall define its policy and ensure commitment to its EMS.

Guiding Principles

- Principle 2 - Planning - an organization shall plan to to fulfill its environmental policy.
- Principle 3 - Implementation - An organization shall develop the capabilities and support mechanisms to achieve its policy requirements and its objectives and targets.

Guiding Principles

- Principle 4 - Measurement and Evaluation - an organization shall monitor and evaluate its environmental performance.
- Principle 5 - Review and Continual Improvement - an organization shall review and continually improve its EMS with the objective of improving its overall performance.

ISO 14001 EMS Standard Links

- ISO 14001:2004E Environmental management systems Specification Standard
- ISO 14004:2004E EMS Guidance
- ISO 19011:2000 Guidelines for quality or environmental EMS auditing

International Organization for Standardization

- Based In Geneva, Switzerland
- 130 Member Countries
  - Standards developed through Technical Committees (TC), Sub-committees (SC) and Working Groups (WG)
  - Currently 180 TC's
- American National Standards Institute (ANSI) represents U.S.

ISO/TC 207

- TC 207 Committee for Environmental Management
- U.S. Representation to the TC is through ANSI
- ISO 14001 is voluntary for companies (however, can become mandatory within a supply chain)

ISO 14000 Key Dates

- 1991 - Strategic Advisory Group for the Environment (SAGE) formed
- June 1992 - UN Conference on Environment and Development agreed on need for environmental management program
- June 1993 - ISO TC - 207 formed
- September, 1996 – ISO 14001 (Published)
- November, 2004 – ISO 14001:2004

ISO 14000 SERIES OF STANDARDS

- ISO 14001 - EMS Specifications Document
- ISO 14004 - EMS Guidance Document
- ISO 19011 - Guidelines for quality and/or environmental management systems auditing
- 14015 – Environmental Assessment of Sites and Organizations

OTHER ISO 14000 SERIES

- 14020 - Environmental Labeling
- 14021 - Self Declaration - Labeling Environmental /Claims
- 14024 - Labeling--Principles
- 14025 - Labeling— Environmental declarations
- 14031 - Environmental Performance Evaluations
- 14032 - Examples of Environmental Performance Evaluation

OTHER ISO 14000 SERIES

- 14040 - Life Cycle Assessment (LCA)
- 14041 - LCA Goals
- 14042 - LCA Impact Assessment
- 14043 - LCA Interpretation
- 14048 - LCA Assessment Data Format
- 14049 - LCA—Examples of application
- 14050 - Vocabulary
- 14061 - Forestry organizations/14001/14004
- Guide 64 - Guide for inclusion of aspects in products

ISO 14001 EMS

- ISO 14001 is the only standard that contains specific requirements that can be objectively audited for registration/certification purposes by an independent Auditor.

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,

4.2 Environmental Policy (cont)

c) includes a commitment to comply with applicable legal requirements and with other requirements to which the organization subscribes, which relate to its environmental aspects,

d) provides the framework for setting and reviewing environmental objectives and targets,

4.2 Environmental Policy (cont)

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 Environmental aspects (causes of environmental impacts)
- 4.3.2 Legal and other requirements
- 4.3.3 Objectives and targets and programs

4.4 Implementation

- 4.4.1 Resources, roles, responsibility and authority
- 4.4.2 Competence, training and awareness
- 4.4.3 Communication
- 4.4.4 Documentation
- 4.4.5 Control of Documents
- 4.4.6 Operational Control
- 4.4.7 Emergency preparedness and response

4.5 Checking

- 4.5.1 Monitoring and measurement
- 4.5.2 Evaluation of compliance
- 4.5.3 Nonconformity, corrective action and preventive action
- 4.5.4 Control of records
- 4.5.5 Internal audit

4.6 Management Review

- Top Management shall review the organization's environmental management system, at planned intervals, to ensure its continuing suitability, adequacy and effectiveness.
  - The review includes:
    - Results of internal audits and evaluations of compliance with legal requirements…
    - Changing circumstances, including developments in legal and other requirements…

How an EMS is used as a management tool in regulatory compliance

An Air Permit Example

MARKIV Automotive
North American Automotive Division

- Dayco Products, L.L.C.
- Contact: Russell Revell, Environmental Management Representative
- Walterboro and Williston Plants, SC
- One EMS
- Certified to the ISO 14001(2004 Edition) (2005)

Dayco Environmental Policy

Dayco Products, LLC Walterboro and Williston facilities will conduct its environmental and safety activities in a responsible manner. Our Environmental Management System assures compliance with applicable laws, regulations and other requirements.

We are committed to the continual improvement of our Environmental, Health, and Safety programs by means of pollution prevention and accident prevention. We strive for excellence by setting and periodically reviewing objectives and targets. Appropriate resources and training is provided to ensure the successful outcome of this policy

Our environmental and safety programs promote goodwill and stewardship amongst our associates, suppliers, customers and community. This policy is communicated to all employees and is available to all interested individuals and groups.

This policy is reviewed with associates, visitors, contractors or persons working on behalf of Dayco

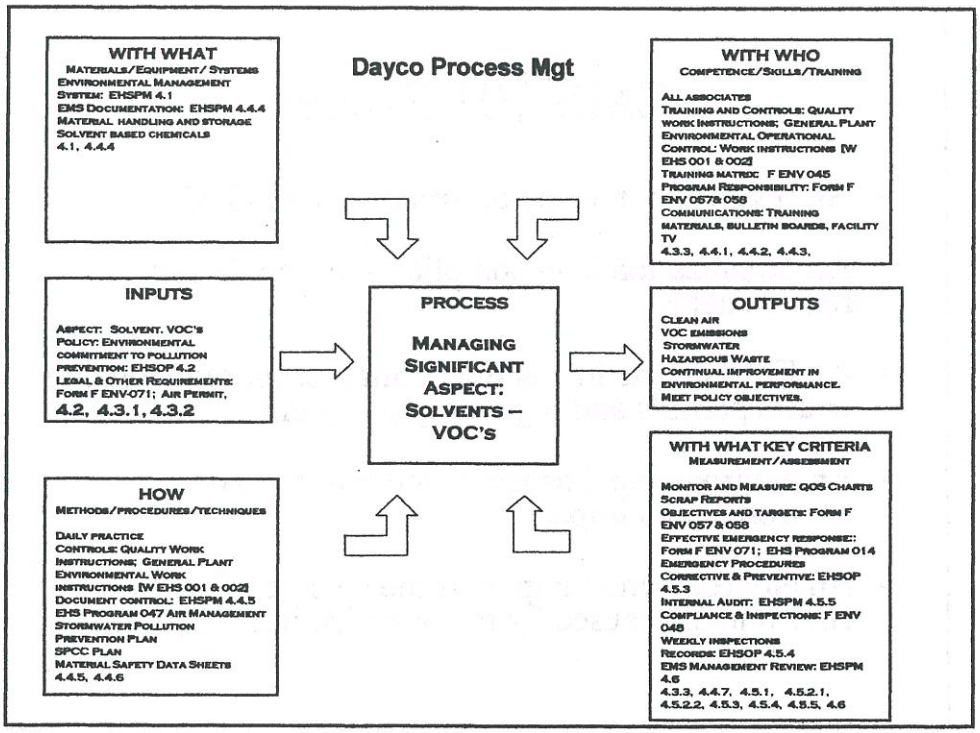
This policy is posted within the plants for viewing

Dayco and Air Permit Management using an EMS

- 4.3.1 Aspects related to Air Management
  - Conditional Major Air Permit
- 4.3.2 Legal and Other Requirements
  - Significant Aspect Linkage
    - Scrap Rubber and Dust
    - Solvent, VOCs
    - Criteria Pollutants
    - Fire, Spills, Severe Weather

Dayco Process Management Example: Solvents and VOCs

- Using an EMS and Permit management to manage environmental impacts and ensure compliance
- MarkIV Automotive
  - Dayco Products L.L.C.
  - Figure ENV - 073



EMS 101 Review

- A structured framework of environmental management that includes organizational structure, planning activities, responsibilities and authorities, practices, procedures, processes and resources
- An EMS is a management tool that contributes to and enhances permit and regulatory program management
- A systems approach is the use of a combination of resources integrated to meet a specific need
- An EMS reduces the risk of non-compliance

EMS 101 Review

- An organization is in conformance to an EMS
- An organization is in compliance to regulatory requirements.
- An EMS assists in meeting management requirements within permits and regulatory programs
- An environmental aspect is the cause of an environmental impact
- An environmental impact is the change to the environment caused by the organization's aspects.

EMS 101 Review

- There are various types of an EMS
- ISO 14001:2004 provides a structured framework for an EMS
- ISO 14001 contributes to regulatory compliance through:
  - Policy
  - Planning
  - Implementation
  - Checking and Corrective Action
  - Management Review

Questions and Comments

POST TEST