ISO 14001 Environmental Management System (EMS) Implementation Training
Iowa Department of Natural Resources
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Training Agenda

- Day 2
  - EMS Implementation Step-by-Step
    - Primary chronological steps to EMS development and implementation
    - Walk-through the major EMS components, how to develop, and provide examples
    - “Environmental Aspects” Workshop: Identifying Environmental Aspects & Impacts and Defining Significance

EMS Implementation Step-by-Step
Steps to EMS Implementation

1. Determine our Goals for EMS
2. Conduct Gap Analysis
3. Determine the Scope and Context of the EMS
4. Obtain Commitment from Leadership
5. Build an Implementation Team
6. Set the Environmental Policy
7. Establish Documentation System
8. Identify Compliance Obligations
9. Identify Risks, Opportunities, Aspects & Impacts
10. Establish Environmental Objectives
11. Develop Procedures & Operational Controls
12. Implement EMS Training
13. Conduct EMS Audits
14. Implement Corrective Actions
15. Complete Management Review
16. ISO 14001 Registration (optional)

Step 1 - Determine Goals for EMS

• Why do we want to implement EMS?
• What do we want to get out of it?
• Do we want to achieve ISO 14001 certification?
Step 2 - Conduct Gap Analysis

- Compare existing environmental systems with the requirements of ISO 14001
- What do we have that can be incorporated in our EMS?
- Existing environmental programs
- Other management systems, documentation
- What’s in practice, not just documented
- Can be formal or informal process
- Provides a baseline
- Helps to establish implementation plan and level of effort

Step 3 - Determine the Scope & Context

- Is this EMS for a single site or for a greater organization?
- What organizational units and functions are included?
- What are the physical boundaries?
- What activities, products, and services are included?
- Are there any portions of the organization to be excluded?
- What are the relevant external and internal issues?
- Who are the organizations interested parties, and what are their needs/expectations?

Example Internal & External Issues

- Environmental conditions related to climate, air quality, water quality, land use, existing contamination, natural resource availability, and biodiversity, that can either affect the org’s purpose or be affected by its environmental aspects.
- External cultural, social, political, legal, regulatory, financial, technological, economic, natural, and competitive circumstances.
- Internal characteristics or conditions of the organization, such as its activities, products, and services, strategic direction, culture, and capabilities (i.e., people, knowledge, processes, systems).
Example Internal & External Issues

- Internal Issues:
  - Mining and mineral processing operations
  - Corporate compliance obligations, requiring maintenance of ISO 14001 certification
  - Employees

- External Issues:
  - Regulatory requirements/compliance obligations
  - Location in a state/local area with stringent environmental regulations
  - Proximity of facility property to residential areas
  - NGOs and Tribal entities
  - Customer expectations

Example Interested Parties/Expectations

<table>
<thead>
<tr>
<th>Stakeholder/Interested Party</th>
<th>Needs or Expectations (i.e. Requirement)</th>
<th>Corporate Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employees</td>
<td>Compliance, safe workplace, financial health</td>
<td>Yes</td>
</tr>
<tr>
<td>Government Agencies</td>
<td>Compliance with regulations, communication</td>
<td>Yes</td>
</tr>
<tr>
<td>Employees</td>
<td>Corporate responsibility</td>
<td>No</td>
</tr>
<tr>
<td>Government Agencies</td>
<td>Compliance, financial health</td>
<td>No</td>
</tr>
<tr>
<td>Employees</td>
<td>Corporate responsibility, pollution prevention, financial health</td>
<td>No</td>
</tr>
<tr>
<td>Neighbors</td>
<td>Corporate responsibility, compliance, pollution prevention, financial health</td>
<td>No</td>
</tr>
</tbody>
</table>

Step 4 - Obtain Commitment from Leadership

- Commitment from top management is essential for a successful EMS
- Top management is required to demonstrate leadership and commitment with respect to the EMS
- Leadership is ultimately responsible for the EMS
- Present business case based on your specific needs, goals, circumstances
- Gap assessment can help provide information on plan, level of effort, and benefits
Step 5 - Build an Implementation Team

- Establish a cross-functional team with members from key functions of the organization
- A cross-functional team will be able to provide insight on various processes
- Meet regularly
- Build ownership of the EMS

Step 6 - Set the Environmental Policy

- Establish Environmental Policy demonstrating the organization’s intentions related to environmental performance.
- Must be established by top management and include the following commitments:
  - Commitment to protection of the environment, including prevention of pollution
  - Commitment to continual improvement of the EMS to enhance environmental performance.

Example Environmental Policy

Sally’s Salads is committed to sustainable growth and preserving the quality of the environment by managing our environmental footprint as defined in our Environmental Management System.

We commit to:
- Protect the environment and prevent pollution through our business practices and maintaining facility operational controls.
- Compliance with environmental laws and meeting other requirements we subscribe to as part of our business operations.
- Continuously improve our environmental performance by setting facility objectives.
Step 7 - Establish Documentation System

- Determine where EMS documents will be stored, how accessed, how controlled, how protected
  - Preferably electronic
  - Can be on shared network drive, SharePoint, Intranet
- Establish document control, update, and approval process
- Determine format for manual, procedures, forms, etc.
- Start putting a revision date on EVERYTHING
- If using existing documents, can reference, not recreate

EMS Documentation System - Example

Step 8 - Identify Compliance Obligations

- Identify and have access to the compliance obligations related to environmental aspects.
- How do the compliance obligations apply to the organization?
- Organization must maintain documentation of its compliance obligations.
Identify Compliance Obligations

- Compliance Obligations (formally Legal & Other Requirements) include:
  - **Federal** (EPA, OSHA, DOT, ...)
  - **State** (State environmental laws)
  - **Local** (City, County, ...)
  - **Other** (Corporate, Industry, Trade, Customer, etc...)

Compliance Obligations - Documentation Examples

- Recurrent Task List / Compliance Calendar
  - Requirements and when they are due
  - Excel, Outlook, etc.

- Legal Register / Compliance Table
  - Listing of regulatory requirements per environmental aspect category and how they apply

Recurrent Task List Example
Step 9 - Identify Risks, Opportunities, Aspects, Impacts

- Risks & Opportunities
  - Determine risks and opportunities and document those that need to be addressed
  - May be documented in various elements of the EMS including:
    - Aspects/Impacts
    - Compliance Obligations
    - Objectives
    - Operational Controls
    - Corrective/Preventive Actions
    - Management Review
    - Continual Improvement

Risks & Opportunities - Example

- One organization maintains Risk & Opportunities register to document risks and opportunities on an ongoing basis.
- These items can demonstrate continual improvement that isn’t necessarily tied to Objectives.
- Also provides a mechanism to track recommendations as opportunities for improvement that aren’t necessarily “findings.”
Determine Environmental Aspects & Impacts

- Identify aspects associated with an organization’s products, activities, and services, considering a life cycle perspective.
- Take into account changes, abnormal conditions, and emergency situations.
- Develop criteria of significance and identify significant environmental aspects (SEAs).
- Communicate SEAs in the organization.
- Document aspects, impacts, criteria, SEAs.

Step 10 - Establish Environmental Objectives

- Establish objectives—take into account the significant environmental aspects, compliance obligations, and risks and opportunities.
- Objectives shall be:
  - Consistent with the Environmental Policy
  - Measurable and Monitored
  - Communicate the Objectives to the organization
  - Objectives must be documented and kept up-to-date.
Planning to Achieve Objectives

- What will be done?
- What resources will be required?
- Who will be responsible?
- When will it be completed?
- How will the results be evaluated?

Environmental Objective Form Example

Environmental Objectives

- Objectives should be approved by top management.
- Objectives and action plans should be documented and communicated.
- Performance against objectives should be reported regularly.
- Objective goals can be adjusted, as needed, with changing circumstances, but MUST document why.
- Objectives should be SMART.
SMART Objectives

- **Specific**: What exactly are we trying to achieve?
  - Some questions to ask when determining objectives are: Why is this important, Where the improvement takes place, What are the conditions and limitations involved?

- **Measurable**: Define the physical manifestation of the objective; define concrete evidence. Determine what will be tracked and how often to measure progress.
  - What are the metrics that can demonstrate effectiveness?

- **Attainable**: Don’t overcommit. Set a target that is reasonable and attainable.
  - Also consider available resources, time, and costs associated with attaining the objective.

- **Relevant**: Why does this matter?
  - Develop objectives that are relevant to your organization and mean something to your team and location. Engage employees where possible.

- **Timely**: Set a defined timeline that is realistic.
  - Can be for a year or can be for a longer period of time.

Step 11 - Develop Procedures & Operational Controls

- The EMS should include documented information necessary for the effectiveness of the EMS
  - EMS Manual
    - Not required, but can help show overall framework of EMS and direct to other documents.
  - EMS Procedures
    - What processes do we want to be documented procedures?
    - Documented procedures help promote consistency and continuity and can serve as a training tool!
    - Procedures should be designed in a way to prevent error and ensure consistent results

Operational Controls

- Can include engineering controls and procedures
- Processes to manage environmental aspects and risks and help to ensure compliance
- Processes for management of change
- Processes for procurement and management of contractors, including communication of requirements
- Controls to ensure environmental requirements are addressed in design/development (if applicable)
- Provide info regarding impacts associated with transportation, delivery, use, end-of-life, or final disposal of products (if applicable)
Example Procedures & Operational Controls

Step 12 - Implement EMS Training

- Identify training needs
- Conduct training
  > General awareness of the EMS
  > Task specific training
- Ensure employees (and contractors) are competent to perform required tasks.
- General communication of the EMS throughout process is also very important.

Training Needs Matrix Example
Step 13 - Conduct EMS Audit(s)

- Develop audit team; use qualified internal or external resources.
- Develop audit plan, schedule, tools.
- Select auditors and conduct audits to ensure objectivity and impartiality in the audit process.
- Document the audit and report results to leadership.

Compliance Evaluation

- Evaluate compliance with compliance obligations, usually through a compliance audit.
- Typically a separate audit from the EMS audit.

Step 14 - Implement Corrective Actions

- Determine the cause of each nonconformity.
  - Could it happen again?
  - Could it occur in some other process?
- Take action to control and correct it.
- Determine proper corrective action for each nonconformity to prevent recurrence.
- Implement the action.
- Review the effectiveness.
- Document this process.
Step 15 - Management Review

- Top management must review the EMS at planned intervals
  - Should be at least annual, but can consist of a series of meetings throughout the year.
- Need to have a process for management review and ensure all required inputs are addressed
- Specific outputs must also be discussed/documentated
- Review the EMS, changes, status of performance, trends, resources, communication, and opportunities for improvement

Management Review Example

<table>
<thead>
<tr>
<th>Agenda Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review EMS</td>
<td>- Top management must review the EMS at planned intervals.</td>
</tr>
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<td></td>
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</tbody>
</table>

Management Review Example

<table>
<thead>
<tr>
<th>Status of actions from previous management review:</th>
<th>Performed</th>
<th>Future Required</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Previous Management Review Date: December 20XX</td>
<td>X</td>
<td></td>
<td>Joe Smith</td>
</tr>
<tr>
<td>- Action was not taken.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Action was completed but changes were not implemented.</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>- Action was completed but resources were not allocated.</td>
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<tr>
<td>- Action was completed but communication was not effective.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Action was completed but opportunities for improvement were not identified.</td>
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Management Review Example

Step 16 - ISO 14001 Registration (optional)

- Conduct registration audit
  - EMS must go through at least one complete cycle prior to the Stage 2 audit.
- Respond to nonconformities.
- Achieve successful recommendation for registration.
- Maintain and continually improve management system.

Environmental Aspect

Definition ISO 14001:2015

Element of an organization's activities, products or services that interacts or that can interact with the environment.
Environmental Impact

Definition: ISO 14001:2015

Change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization's environmental aspects.

(The change to the environment as a result of the aspect)

Environmental Aspects

- Identify environmental aspects
- Select what the organization can control/influence
- Set significance criteria
- Determine aspects with significant impacts
- Keep up-to-date

Significant aspects must be taken into account in establishing, implementing, and maintaining the EMS.
Environmental Aspects

Getting started
- Examine the entire organization
- By department, by product, by process
- Create list of aspects that affect the environment
  - Through flowcharting
  - Through brainstorming
  - Through evaluation of processes
  - Utilize employees

Aspects: Inputs and Outputs

Aspects and Impacts
Environmental Aspects and Impacts – Basic Steps
• Identify environmental aspects
• Identify associated environmental impacts
• Undertake “scoring” for each
• Allocate significance - threshold/ cut-off point
• Produce register of environmental aspects and significant environmental aspects (SEAs)

Examples of Aspects
• Energy usage
• Water consumption
• Raw material selection and usage
• Air emissions
• Wastewater
• Solid waste generation
• Aspects are the inputs and outputs your activities and processes

Example Impact Categories
• Impacts to:
  - Air Quality (AQ)
  - Land Quality (LQ)
  - Water Quality (WQ)
  - Natural Resources (NR)
  - Human Health (HH)
Tips

- Identify aspects for each major process/activity
- Combine similar or like processes into one category, if the aspects are the same
- Identify aspects under normal, abnormal, and emergency conditions
- When in doubt, K.I.S.S.

Significance Scoring

- Choose a significance scoring system to apply to aspects
- Choose categories/scale for scoring
  - Examples: Frequency, compliance/regulatory, severity, etc.
  - Choose formula for calculating significance

Significance Scoring Example

- Impact scored from 1 (least) to 5 (highest) for each criterion
- Criteria categories
  - Frequency (F)
  - Severity (S)
  - Regulatory (R)
  - Community Concern (C)
- Overall significance score (SS) is product of individual criterion scores
  - \[ F \times S \times R \times C = SS \]
  - A “5” regulatory is automatically significant
Environmental Aspects Workshop

- Choose an example activity/operation.
- List the environmental aspects (by input and output).
- Identify the associated environmental impacts.
- Rank the aspects for significance using the criteria provided.

Questions?

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