U.S. Army Corps of Engineers Environmental Management System Implementers Guide

DECEMBER 2003

FINAL DRAFT

ACKNOWLEDGMENTS

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- International Organization for Standardization, Environmental management systems—General guidelines on principles, systems and supporting techniques, first edition, ISO 14004:1996(E).

- International Organization for Standardization, *Environmental management systems—Specification with guidance for use*, ISO 14001:1996.

- Concurrent Technologies Corporation, Environmental Management System Guidance Manual: Implementing ISO 14001.

- Concurrent Technologies Corporation, *Environmental Management Toolkit—An Environmental Management System Implementation Tool*, October 2002.

- National Science Foundation International Strategic Registrations (NSF-ISR), Ltd., *Environmental Management Systems—An Implementation Guide for Small and Medium-Sized Organizations*, second edition, January 2001.

- The Public Entity Environmental Management System Resource (PEER) Center, *How to Implement an EMS* [on-line document], undated [cited February 2003]. Available from http://www.peercenter.net/howtoimplement/.

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Introduction

Purpose of This Guide

This guide provides USACE personnel an easy-to-use, step-by-step tool for implementing an environmental management system (EMS). It provides the information needed to establish and implement an EMS at both the district level and at Civil Works Projects and Facilities, while allowing the flexibility to address differing district missions and operational requirements.

Flexibility in Developing EMS plans

While this document provides specific examples and procedures for developing an EMS, the user should keep in mind that the EMS process is flexible and dynamic in nature and there is no "one size fits all" approach to developing an EMS that works best in all situations. When developing an EMS for a specific district, project or facility, personnel may need to modify the approach presented herein. This guidance provides a framework for EMS development and the user should not hesitate to make alterations based upon site-specific conditions or situations.

Environmental Operating Principles

The USACE has reaffirmed its commitment to the environment by formalizing a set of seven "Environmental Operating Principles" (EOPs) applicable to all its decision-making and programs. The principles foster unity of purpose on environmental issues, reflect a new tone and direction for dialogue on environmental matters, and ensure that employees consider conservation, environmental preservation and restoration in all USACE activities. All Corps employees should become familiar with the EOPs and incorporate them into EMS implementation. Click here for a copy of the EOPs. Click here for associated training and implementation information.

USACE "Elements"

Throughout this document, the term "element" is used to refer to a district, a project or a facility. An EMS may be developed for any one of these and the guidelines in this document are applicable to the development and implementation of an EMS whether it is at the district level or for a specific project or facility.

What Is an EMS?

An EMS is the part of an organization's overall management system that integrates environmental concerns and issues into the organization's management processes. An EMS addresses organizational structure, planning activities, responsibilities, practices, procedures, processes, and resources for developing,

implementing, achieving, reviewing, and maintaining environmental policy. An EMS enables an organization of any size or type to control the impact of its activities, products, or services on the natural environment, allowing it to not only achieve and maintain compliance with current environmental requirements, but to recognize and proactively manage future issues that might impact mission sustainability. Implementing an EMS generally will not require USACE elements to create an entirely new system. Many of the required elements of an EMS are already in place as part of existing programs.

Mission Focus

Each USACE EMS must focus on supporting and sustaining the element's mission. This guide shows how to identify and incorporate mission priorities in EMS implementation. The resulting management system will help elements identify, manage, and mitigate the environmental impacts associated with mission-related activities.

ISO 14001

Army leadership has decided to use the ISO 14001 standard developed by the International Organization for Standardization as a model for developing and implementing an EMS at appropriate elements [criteria for determining "appropriate" elements follow this section]. The ISO 14001 standard provides EMS specifications that apply to a wide variety of organizations and activities. This implementation guide is specifically designed to enable USACE elements to develop a mission-focused EMS that conforms with the ISO 14001 standard. Figure 1-1 shows the ISO 14001 model, which employs a continual cycle of policy, planning, implementation and operation, checking and corrective actions, and management review. The ultimate goal is to continually improve environmental performance as the cycle is repeated.

Figure 1-1. ISO 14001 Model with Mission Focus

APPROPRIATE ELEMENT CRITERIA

The decision as to whether or not a particular element is required to develop and implement and EMS depends upon the size, complexity, environmental risk, regulatory compliance history, mission and significance of the environmental aspects and impacts of the element. For example, USACE district offices are not generally considered to have significant enough environmental impacts to make developing an EMS mandatory. However, districts may choose to develop a programmatic EMS for their associated impacts and to implement the EOPS discussed earlier.

Elements within the Corps that must develop an EMS are those Civil Works Projects and Facilities with activities that result in significant impacts to the environment. Projects or facilities that meet any of the following criteria should be considered appropriate for the implementation of a Project/Facility-wide EMS:

- Large Quantity Generator of RCRA Hazardous Waste (Does not include episodic LQG status due to periodic activities) ;
- Been issued a Notice of Violation (NOV) from either EPA or a state environmental agency within the last three years (Does not include administrative items);
- Been listed on the Federal Facilities Docket (i.e, had a confirmed reportable release of a CERCLA hazardous substance, discovery of a prior release/contamination, etc.);
- Possess an environmental operating permit that identifies the facility as “Major” (e.g., NPDES permit, Clean Air Act Title V permit, RCRA Part B permit, 404 permits for dredging, etc.);
- EPCRA TRI reporting required for the facility; or

- Operations have a direct and potentially negative affect on threatened and endangered species as determined through the NEPA Process.

IMPLEMENTATION REQUIREMENTS

Executive Order (EO) 13148, "Greening the Government Through Leadership in Environmental Management," directs all federal agencies as follows:

- By 31 December 2005, each agency shall implement an [EMS] at all appropriate agency facilities based on facility size, complexity, and the environmental aspects of facility operations.

- The facility [EMS] shall include measurable environmental goals, objectives, and targets that are reviewed and updated annually.

- Once established, [EMS] performance measures shall be incorporated in agency facility audit protocols.[1]

ARMY POLICY

The Deputy Assistant Secretary of the Army (Environment, Safety and Occupational Health) signed an action memorandum on EMS, which directs appropriate facilities to meet the following requirements:

- Implementation shall be initiated NLT [no later than] FY04, with an environmental management system in place NLT 31 December 2005.

- Adopt the internationally recognized management system standard, ISO 14001, as a goal.

Full conformance with the ISO 14001 standard shall be completed NLT FY09.[2] The action memorandum also states the following:

- Third party registration to the standard is not required. However, district commanders may pursue registration when it provides clear and documented mission benefits.

- Implementation of the standard will be incremental. It will be consistent with available funds and the requirements of Executive Order 13148, "Greening the Government Through Leadership in Environmental Management."

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[1] Executive Order 13148, "Greening the Government Through Leadership in Environmental Management," April 21, 2000.

[2] Memorandum for Assistant Chief of Staff for Installation Management, from Raymond J. Fatz, Deputy Assistant Secretary of the Army (Environment, Safety and Occupational Health), OASA(I&E), Subject, *Army Environmental Management System*, July 13, 2001. Available from http://aec.army.mil/usaec/support/ems-requirements080601.pdf.

The Army's EMS policy directs a phased approach to satisfying EO 13148 and EMS implementation:

- First, comply with EO 13148 by meeting the Army/Department of Defense (DoD) implementation metrics by 31 December 2005 (see below).

- Then, use continual improvement to build the remaining parts of a mission-focused, ISO 14001–conformant EMS by December 2009.

Developing and implementing an EMS is required at all *appropriate* USACE Civil Works Projects and Facilities. In addition, USACE districts may choose to develop and implement a district level EMS at their discretion. See the glossary for a definition of what constitutes an appropriate project or facility.

USACE POLICY AND SCHEDULE FOR IMPLEMENTATION

The USACE EMS Policy was signed on 19 May 03 and is included as Appendix B of this guidance document.

The USACE EMS Project Management Plan has established the following schedule for implementing EMS at appropriate Corps facilities and meet the requirements of EO 13148 as well as Army and DoD policy requirements:

- Develop an ISO 14001–conformant environmental USACE policy statement, NLT 30 September 2003. [The USACE EMS policy was signed on 19 May 03.]
- Develop EMS Guidance to assist program offices (military, civil and work for others) in implementing internal district or program-wide EMS to better serve their customers by Fall 03.
- Have written PMPs for each appropriate facility with defined dates, identified resources, and organizational responsibilities for implementing EMS consistent with ISO 14001 and related EMS policies by Fall 04.
- Inauguration of EMS at appropriate USACE facilities by 31 Dec 05.

These metrics are minimum requirements. USACE elements should complete them before the scheduled dates if resources allow. Some Army organizations have reported that moving faster maintains interest and makes implementation easier.

RESOURCES FOR IMPLEMENTATION

USACE leadership has authorized the use of O&M funds for EMS implementation at appropriate Civil Works Projects and Facilities. Typical resource requirements

[3] Memorandum for Deputy Assistant Secretary of the Army (Environment, Safety and Occupational Health) from John Paul Woodley, Jr., Assistant Deputy Undersecretary of Defense (Environment), Subject, *Environmental Management System (EMS) Implementation Criteria and Metrics,* 30 Jan 2003.

for implementing an EMS include the cost of people, time, and contractors. As USACE gains experience in implementing EMSs, implementation costs will likely decrease. Although initial costs of developing and implementing an EMS can be significant, the program should lead to efficiencies in the long term. Updated tools, training materials, example documentation, and guidance are available to help USACE elements implement an EMS. For information related to EMS tools and guidance, see the Defense Environmental Network Information Exchange (DENIX) Army EMS website https://128.174.5.51/denix/denix.html. The information is under the EMS subject area and will require a login and password for the DoD pages of DENIX.

IMPLEMENTATION ROADMAP

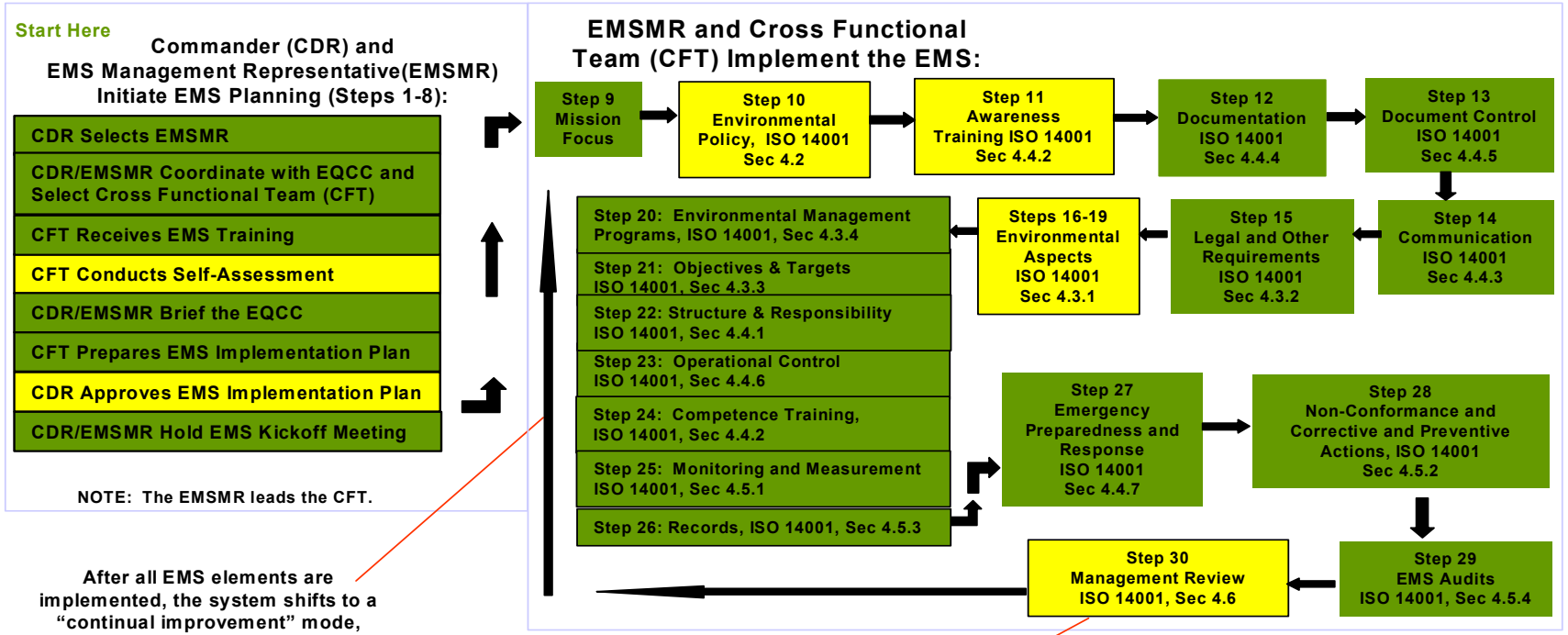
This guide identifies 30 EMS implementation steps that lead to a mission-focused, ISO 14001–conformant EMS. Chapter 2 provides step-by step instructions. Figure 1-2 is a suggested implementation sequence chart, which provides USACE elements a visual overview of the 30 steps. The steps are arranged in a logical order that progressively builds the essential parts of an ISO-conformant EMS. The sequence in Figure 1-2 differs slightly from ones you may see in other EMS guidance documents:

- It contains additional requirements specifically designed for USACE elements.
- Certain requirements or steps have been moved forward in the implementation sequence to help USACE elements get an early start in meeting dates associated with Army implementation metrics.
- Requirements associated with communications and documentation procedures have been moved forward in the sequence to help elements manage the implementation process.
- The implementation sequence is not rigid and can be adapted to accommodate an element's specific situation. In Figure 1-2, yellow boxes highlight the requirements associated with Army and DoD implementation metrics, which must be completed by 31 December 2005.
- The sections referred to in the figure's boxes refer to the actual sections in the ISO 14001 standard.

Figure 1-2. Suggested EMS Implementation Sequence for Appropriate Projects, Facilities and Districts

The elements shown in the blocks below provide a logical sequence for planning and implementing an EMS, starting at the left side of the page and following the arrows. **You may also choose to revise this sequence to accommodate specific situations at your installation. We recommend you carefully read the entire guide before choosing an alternative sequence.**

31 December 2005 Milestone:
At a minimum, the Army metric elements (in yellow) must be completed *and an annual management review performed* before 31 December 2005 in order to satisfy Army Policy and EO 13148 requirements.



30 September 2009 Milestone:
Installations must complete all the elements above and have a fully functioning EMS (ISO 14001 compliant).

ROLES AND RESPONSIBILITIES

Chapter 2 recommends specific roles and responsibilities for overseeing and completing the steps shown in Figure 1-2. Senior leaders have a particularly important role in supporting EMS implementation. The District Commander has overall responsibility for EMS implementation but delegates the authority for executing the process to a designated EMS management representative(s). The district environmental quality control committee (EQCC), or similar senior leader advisory group, provides district oversight and support to the EMS implementation effort.[4] Establishing an active EQCC facilitates the senior leader oversight and buy-in vital to EMS implementation.

CONTINUAL IMPROVEMENT

An EMS must be continually updated to address changes in missions, environmental aspects and impacts, legal requirements, roles and responsibilities, and training requirements. Audits and periodic reviews of the EMS procedures and documentation identify areas for improvement. Once implementation is completed, EMS responsibilities continue, but mostly at the operational or functional process level. If the EMS has been properly designed and implemented, most day-to-day EMS activities become part of how the element conducts its business, as opposed to a special, separate program. Chapter 2 describes key EMS and continuous improvement activities.

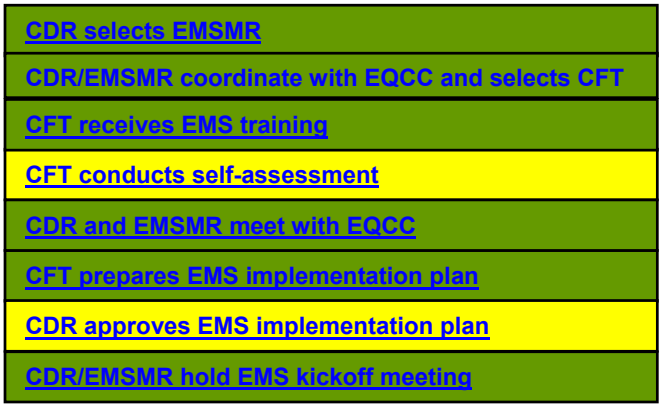
[4] The abbreviation EQCC is used throughout this report to refer to an actual EQCC or any similar senior leader advisory group.

Chapter 2
Step-by-Step Guidance

INTRODUCTION

The remainder of this guide leads the user through required actions for EMS implementation by defining terminology, describing recommended actions, identifying those involved, and giving detailed instructions, example documentation, and links to tools and other materials that will help implement the EMS. ***The sequence of steps shown in this guide is not unalterable. You can rearrange the sequence to fit your specific situation.***

COMMANDER AND EMS MANAGEMENT REPRESENTATIVE INITIATE EMS PLANNING (STEPS 1–8)



EMS implementation at a USACE element begins with the District Commander (CDR). The CDR must ensure that several key actions are completed before EMS implementation can actually start:

- Designate the EMS management representative (EMSMR).
- Coordinate with senior leaders and select the cross-functional team (CFT).
- Conduct a self-assessment.
- Meet with the environmental quality control committee EQCC.
- Prepare an implementation plan.

Step 1. Designate the EMSMR.

The CDR designates the EMSMR, who is responsible for managing and overseeing the EMS implementation effort. The CDR will generally designate a key staff member as the EMSMR for developing and implementing a district EMS. For an EMS at a project or facility, the EMSMR will generally be a individual physically located at the project or facility. The EMSMR (or designated action officer) should possess:

- the necessary authority,
- a good understanding of district organizations, and
- the project management and facilitation skills needed to succeed in this role.

The EMSMR coordinates the implementation, manages day-to-day operations, and leads and manages the CFT. Specific responsibilities include:

- planning and managing EMS implementation,
- delegating tasks and establishing deadlines,
- collecting and evaluating work, and
- arranging training, guidance, and assistance.[1]

The CDR should consider background, experience, availability, and other appropriate factors when designating the EMSMR. Consider individuals *outside* the environmental office when choosing the EMSMR. The EMS needs district-wide support to be effective, and designating a non-environmental person to implement the system conveys the message that EMS involves much more than environment. In many cases, members of the CDR's special staff are prime choices for the EMSMR position.

Step 2. Coordinate with senior leaders and select the CFT.
EMS implementation requires support from throughout the element. The CFT coordinates this support and is responsible for implementing the EMS. This step has two objectives: coordinating with senior leaders in the district and at the project or facility to get their buy-in and (in some cases) obtaining a CFT member from their organizations. Under the leadership of the EMSMR, CFT members become the EMS experts and proponents in each functional area. Typical responsibilities of the CFT include

- gathering, organizing, and disseminating information;
- delegating EMS tasks and general responsibilities;
- collecting and evaluating work;
- developing EMS procedures;
- advising, coordinating, and facilitating EMS implementation;
- representing all functional areas of the element regardless of actual CFT representation; and
- managing the reactions to the changes resulting from EMS implementation.[2]

Each CFT member should have clear responsibilities for representing and coordinating with specific organizations at the element. For example, a CFT member from natural resources might serve as the CFT representative for all the Projects and Facilities within a district. CFT members should include a

[1] The Public Entity Environmental Management System Resource (PEER) Center, *How to Implement an EMS* [on-line document], undated [cited February 2003]. Available from http://www.peercenter.net/howtoimplement/.

[2] PEER Center, *How to Implement an EMS* [on-line document], undated [cited February 2003]. Available from http://www.peercenter.net/howtoimplement/.

representative from an environmental organization as well as representatives concerned with other key element activities. The CDR and EMSMR should seek volunteers or ask other senior leaders at the district and project or facility to recommend employees to serve on the CFT.

The CFT should consist of no more than eight people. The CDR and EMSMR should ask the following questions when selecting the team members:

- Are they motivated, interested, and able?
- Are they experts in their own functional areas?
- Are they good communicators?
- Can they give credence to the EMS program?[3]
- Do coworkers trust and respect them?
- Are they responsible for environmental issues?[4]
- Do they represent functional areas that are directly concerned with or potentially affected by environmental issues?[5]
- Are they aware of the installation's most critical environmental issues?
- Are key functions represented?[6]

Step 3. Orient and train the CFT in EMS implementation.
After the EMSMR and CFT members are selected, the EMSMR should hold a CFT orientation meeting before CFT training begins. At this meeting, the EMSMR should do the following:

- Provide members with copies of the EMS implementation guidance and other pertinent information.
- Establish an initial CFT EMS training schedule and set additional research assignments, if needed.
- Establish a schedule for periodic CFT meetings (weekly breakfast, monthly, etc.). The periodic CFT meetings need not be formal, just a venue for reviewing the current implementation status, discussing new initiatives, checking status of research assignments, etc.
- Appoint a member of the CFT as the EMS document coordinator. This person will be responsible for ensuring the proper documents are created, stored, and

[3] PEER Center, *How to Implement an EMS* [on-line document], undated [cited February 2003]. Available from http://www.peercenter.net/howtoimplement/.

[4] PEER Center, *How to Implement an EMS* [on-line document], undated [cited February 2003]. Available from http://www.peercenter.net/howtoimplement/.

[5] PEER Center, *How to Implement an EMS* [on-line document], undated [cited February 2003]. Available from http://www.peercenter.net/howtoimplement/.

[6] PEER Center, *How to Implement an EMS* [on-line document], undated [cited February 2003]. Available from http://www.peercenter.net/howtoimplement/.

maintained in accordance with procedures established later in the implementation process. This can be a big job, and it will continue to require effort beyond initial EMS implementation. The document coordinator should have a strong information technology (IT) background because the EMS documentation is best managed electronically. This person should have access to the necessary files documents, as well as distribute information as needed. Choose someone well (with appropriate security clearances) and the capability to store and modify organized: this job is key to initial EMS implementation and continuous operation.

- Choose a member of the CFT as meeting recorder (possibly the same person as the EMS document coordinator). This person is responsible for properly documenting each meeting (including the initial one) through written minutes. The recorder also files and maintains the meeting records in accordance with the procedures the EMS document coordinator establishes.

All team members need in-depth EMS training and a clear understanding of their roles and responsibilities to plan and lead the implementation effort. Specific training objectives should include the following:

- EO requirements
- Army policy
- The Chief's Environmental Operating Principles (EOPs)
- ISO 14001 requirements
- EMS fundamentals (what it is, how it works, who is responsible etc.).

Training is available from many sources. The CFT can be trained by contractors on- or off-site, at private institutions or training centers, or through Army training sites. The training can be done in-house via distance learning or train-the-trainer sources. Click here to find information on training resources.

Step 4. Conduct a self- assessment.

The CFT is responsible for performing a self-assessment to analyze the installation's current conformance with the ISO 14001 standard. This systemic-level self-assessment should examine element policies, processes, and procedures relevant to EMS requirements. The self-assessment itself is not a required ISO 14001 element, but it is one of the USACE EMS implementation tasks. It should require only a few days to complete, and the assessment team (headed by the EMSMR) should be no more than six people (one or two may suffice for a smaller facility). CFT members should have a basic understanding of ISO 14001 before conducting the self-assessment. Completing initial EMS training, plus some additional self-study, should suffice. Use the following links to access tools to assist with the assessment. These assessment tools help you what your element has and what it needs to have for an ISO-conformant EMS. Software to assist in the self-assessment process can be run from here A gap analysis checklist is available here. In addition, an Excel scoring worksheet is provided here. Since the self-assessment is one of the USACE EMS

implementation tasks you should maintain internal records of the results.

> Because most Corp Projects and Facilities have well-established environmental programs, most basic components of the EMS are likely already in place.

However, ISO 14001 does not require self-assessment records for conformance. The self-assessment team should report the results to the CDR. The results ultimately help the EMSMR and CFT develop an implementation plan and identify the resources needed to implement the EMS.

Step 5. Meet with the EQCC.[7]

After the self-assessment is completed, the CDR should meet with the EQCC and:

- Provide a brief EMS introduction and overview.
- Explain that the element is implementing an EMS per Army policy and EO 13148.
- Explain that the element will involve them in future tasks, such as implementation planning and management reviews.
- Obtain buy-in and set the stage for future meetings.

Items that should be discussed at the first meeting with the EQCC should include:

- EMS implementation efforts
- Results from the self-assessment
- An explanation of the purpose of the self-assessment.
- The element's EMS status—the requirements already met and those pending.
- Request for assistance in highlighting areas that may require significant resources (including non-environmental ones) and identifying funding sources.
- Reviewing and revising (as needed) the environmental policy statement.

Step 6. Prepare an EMS implementation plan.

Using the results of the self-assessment and guidance from the meeting with the EQCC, the EMSMR should begin working with the CFT to develop an EMS implementation plan and associated budget:

- The implementation plan is critical because it is the roadmap for EMS implementation across the installation. Completing the plan and obtaining command approval is also an Army EMS implementation metric.
- Use the self-assessment results and this guidance to determine what parts of the EMS your installation needs and how to complete them.
- The EMS implementation plan should detail the key actions needed to complete the elements required in an ISO 14001–conforming system, who completes those

[7] We use the abbreviation EQCC throughout this report to refer to an actual EQCC, an EMS Implementation PDT or any similar team or advisory group.

elements, the resources needed, who provides the resources, and when the work is completed.[8]
- The plan must clearly cite the desired goals for EMS implementation (for example, whether certification is desired) and clearly define roles and responsibilities for plan execution. Make sure it includes key milestones.
- Use automated project planning tools as needed to help plan and manage the EMS implementation process over time.

Some organizations may elect to establish timekeeping codes to track hours spent implementing the EMS. These data can be useful in tracking total EMS implementation costs and in continuing project management efforts.

Step 7. Obtain top managemen approval of the EMS implementation plan or PMP.

Army EMS Implementation Metric
Implementation Plan. A written plan with defined dates, identified resources, timelines, and organizational responsibilities for implementing an installation-wide EMS consistent with Army EMS policy has been signed by the CDR.

When completed, the implementation plan and budget must be staffed through all senior leaders in the district, and then reviewed and signed by the CDR. By concurring with the implementation plan, the commander and senior leadership commit to providing the necessary resources (funding and manpower) for EMS implementation. Be certain to identify specific funding sources in the plan budget. After the plan is approved, file it in an accessible location (see documentation requirements). Use the approved plan as the primary project management tool to identify potential roadblocks and to ensure task accomplishment. Periodically review implementation progress with regard to milestones and analyze the budget. ISO 14001 does not require documentation or records regarding the implementation plan. However, we recommend controlling the implementation plan under the document control system (Step 13) and tracking implementation progress with appropriate records (Step 26).

Step 8. Hold an EMS implementation kickoff meeting.

An element-wide EMS implementation kickoff meeting is a good way to formally announce the EMS effort. Explain why the element is implementing an EMS and the benefits that will result from EMS implementation. Present the self-assessment results as the foundation for EMS implementation efforts across the element and discuss the element and USACE goals for EMS implementation. A wide variety of people should attend this kickoff meeting, including the following:

[8] NSF International Strategic Registrations (NSF-ISR), Ltd., *Environmental Management Systems—An Implementation Guide for Small and Medium-Sized Organizations*, 2001, p. 13.

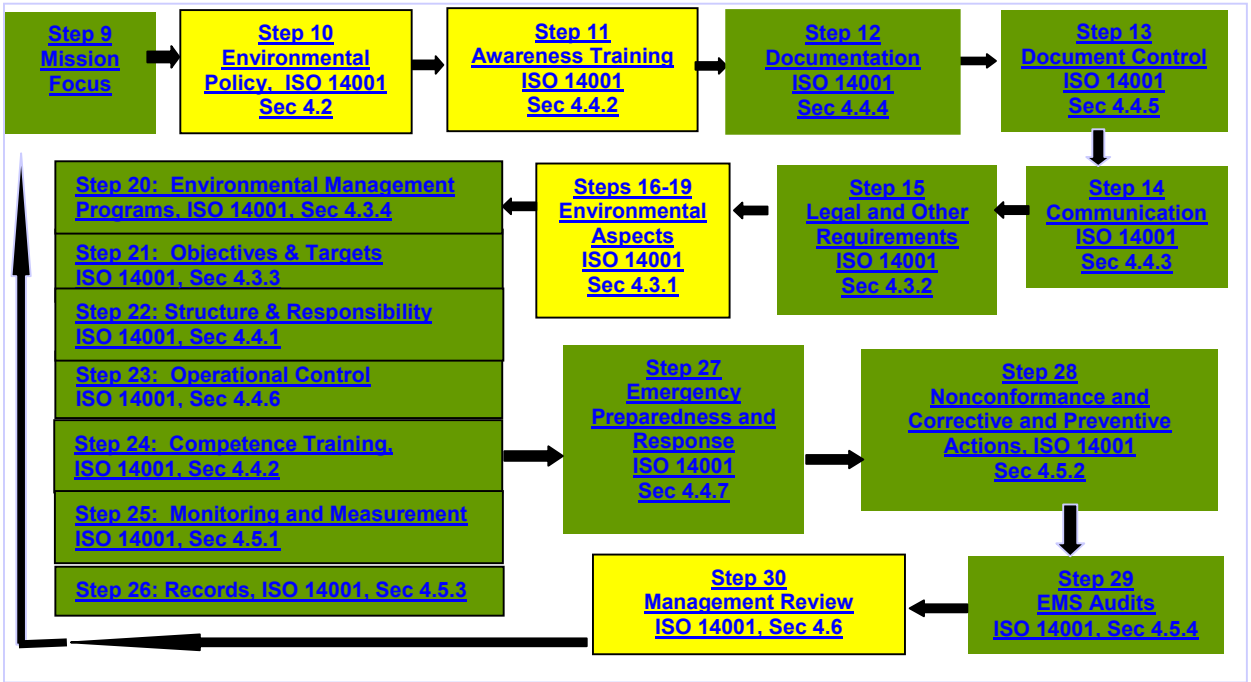
- CDR (and Project/Facility Manager for Projects and Facilities)
- EMSMR
- CFT
- EQCC
- Element environmental staff
- Representatives from all element functional areas
- Contracting officer or contracting officer's representative
- Community advisory boards

The CDR should sponsor and announce the kickoff meeting. The EMSMR prepares the agenda and supports the CDR as required. At the kickoff meeting, the CDR should introduce the element's EMS efforts, explain why the initiative is important, and briefly overview how the implementation is going to occur. Include representatives from all functional areas within the element to inform them how they are expected to contribute to the implementation effort. Good representation from the elements functional is essential. Emphasize that EMS implementation requires support from across the element.

EMSMR and CFT Implement the EMS

At this point, most of the preparatory work is complete and you are ready to begin the critical phase of EMS implementation. Except for "Mission Focus," all elements in Figure 2-1 directly relate to the requirements of ISO 14001. Those highlighted in yellow include requirements contained in the Army and DoD implementation metrics.

Figure 1-1. EMSMR and Cross Functional Team Implement the EMS



Remember, you can rearrange the sequence of these steps as appropriate for your situation. To accelerate implementation and frontload the implementation metric requirements, you can postpone Steps 12, 13, and 14 until after the aspects and impacts analysis is completed. You can also perform many of these steps concurrently, if resources permit. The concept of continual improvement is critical to the EMS. The entire EMS is periodically reviewed and revised to improve performance and address changes in mission or installation operations.

Step 9. Identify mission focus.

Identify and document mission priorities.
In order to create a mission-enhancing EMS, the CFT members must interview appropriate personnel associated with each Corps activity to help determine project, facility or district mission priorities. Projects and Facilities need to include lessees in identifying mission focus. The interview process should accomplish the following objectives:

- Identify and prioritize actions that the element must currently perform to maintain readiness or to accomplish day-to-day missions.
- Identify and prioritize anticipated (future) mission requirements (3 to 5 years in the future).
- Identify future large-scale issues that might affect the element mission (10 or more years in the future).
- Identify environmental roadblocks or impediments that affect mission capabilities.

Why Is Mission Focus Important?

An essential step in designing an EMS is to understand the mission priorities of the element. The top priorities should be those missions that define "why the element exists." For example, top priorities for a dam project would include power production, flood control, recreation, etc. The challenge is to identify, manage, and mitigate the environmental impacts of mission-related activities. By proactively managing these impacts, the element can continue to perform critical activities now and in the future. Early identification of large-scale issues and future missions allows greater time and flexibility for identifying associated environmental impacts and finding solutions. A well-designed EMS supports realistic, effective, and sustainable operations, and helps the installation prepare for new mission requirements. The following paragraphs provide recommendations for planning and completing mission focus interviews.

1. Develop an inventory of all organizations within the element to be interviewed. This will help you make sure that no organization is left out, set completion milestones, and schedule interviews.

- Get copies of organizational charts and learn the chain of command, so you understand the hierarchy of the different organizations.
- Identify the element's environmental compliance personnel.
- In preparation for selecting the leaders to be interviewed, review recent notices of violation (NOVs), environmental enforcement actions, and Environmental Compliance Assessment (ERGO) findings. Be certain to interview the leaders of organizations where environmental problems or issues have been identified.

2. Notify personnel to be interviewed.

- Explain the purpose of the interview.
- When scheduling interviews, begin with the commander or project or facility manager, and work your way down into the organization.
- The read-ahead materials should include an EMS information brochure, element information sheet, and the interview format.

3. Select the interviewers and prepare for the interviews. Be certain to match the interviewer's experience and knowledge with the organization being interviewed. Persons interviewing organizational managers should have a good understanding of that organization's operations and should spend time reviewing the element information sheet before conducting the interviews.

4. Conduct the Interviews.

- Begin each interview by explaining the purpose of the interview and how the results will be used to develop a mission-enhancing EMS. Use a written format sheet to guide the discussion and record information. To view an interview Excel worksheet, click here. Click here for instructions for using the format.
- Major interview objectives
  - *Identify current missions and mission priorities*. What are the element's most important missions and mission-related activities? One technique for determining priorities is to perform a hypothetical resource allocation. If the leader had 100 "resource units" to fund mission priorities, how would they be distributed?
  - *Identify and prioritize anticipated future missions (3 to 5 years out)*. What new missions will be assigned to the unit in the near future? Where do these fall in the priority scheme?
  - *Identify future large-scale issues that might affect the installation and its missions (10 or more years out)*. Ask the leader to discuss any situations that might significantly limit future mission capabilities. Examples include regional issues, such as water shortages and levels and impacts to threatened or endangered species.
  - *Discuss environmental "roadblocks" or issues that negatively affect the mission.* These should be issues that are difficult to work around or that cause significant impairments to the mission or training. Examples

include endangered species habitats, noise restrictions, and air emission restrictions (dust, smoke, etc.).

4. **Determine the elements top mission priorities.** After completing all the interviews, combine the results and total the resource units for each mission listed on the interview sheets. The activities with the highest (composite) resource allocations are the element's top mission activities. When the roll-up (element-level) mission priorities are determined, the CFT (with assistance from the environmental compliance personnel) reviews and verifies the results, which will be used in the aspects and impacts analysis, described in Steps 16 through 19. As you determine the significance of environmental aspects and impacts, be certain to consider the aspects and impacts associated with the top priority missions identified in this step.

Step 10. Revise and sign district environmental policy statement (by 30 September 2003).

Environmental Policy, ISO 14001, Section 4.2

Objective: Complete a district-wide environmental policy statement that conforms to ISO 14001 requirements and the Chief's Environmental Operating Principles. While individual projects or facilities within a district may have separate EMS plans, the environmental policy statement should be made at the district level.

Importance of the Environmental Policy: The environmental policy is the district's statement of the overall direction and principles of action regarding its environmental responsibility. "It sets the goal as to the level of environmental responsibility and performance required of the organization, against which all subsequent actions will be judged."[9]

Your district may already have an installation environmental policy. Use this opportunity to review the policy and make sure it fulfills the requirements described below. The EMSMR will need to work with the CDR and CFT to

> ISO 14001 defines *prevention of pollution* as the use of processes, practices, materials, or products that avoid, reduce, or control pollution, which may include recycling, treatment, process changes, control mechanisms, efficient use of resources, and material substitution.

[9] International Organization for Standardization, *Environmental management systems—General guidelines on principles, systems and supporting techniques*, ISO 14004, 1996, Section 4.1.4, p.6.

review and revise, or create, a suitable environmental policy statement.

> ISO 14001 defines an *environmental policy* as a statement by the organization of its intentions and principles in relation to its overall environmental performance, which is a framework for action and for setting its environmental objectives and targets.

Policy Content: In order to conform with ISO 14001 and be relevant to a USACE element, the policy must include the following key features:

- It must be *appropriate for the nature, scale, and environmental impacts of the districts activities, products, or services*. This is one of the reasons why mission focus was examined in Step 9. The policy must have some reference to the district's mission.
- It must *include a commitment to continual improvement and prevention of pollution*. Nothing elaborate is required—just a brief statement that commits the district to these two concepts.
- The policy must make a *commitment to comply with relevant environmental legislation and regulations and with other requirements to which the installation subscribes*. If the district has already made this commitment, it can be stated in one sentence in the policy.
- It must *provide the framework for setting and reviewing environmental objectives and targets*. Again, no elaborate explanation is required. You might state that you will be setting objectives and targets in the same sentence as continual improvement.
- The policy *must be documented, implemented, maintained, and communicated to all employees*. The policy must be managed and controlled in accordance with document control procedures (Step 13). It must be signed by the CDR and reissued following changes of command. It must also be communicated to and understood by everyone in the organization. The use of wallet cards can assist in this effort.
- *And finally, the policy must be available to the public, at least as requested*. Your choose installation may to publish the policy in a newspaper or on your website.[10]

ISO 14001 defines *continual improvement* as the process of enhancing the EMS to achieve improvements in overall environmental performance in line with the organization's environmental policy.

Optional Content for Environmental Policy Statement: Your environmental policy may include other goals for which your installation strives, for example,

- minimize any significant adverse environmental impacts of new missions or processes through the use of the integrated environmental management procedures and planning;
- incorporate sustainability and life-cycle thinking in planning decisions;
- select products that minimize environmental impacts in production, use, and disposal;
- reduce waste and the consumption of resources (materials, fuel, and energy) and commit to recovery and recycling, as opposed to disposal, where feasible;
- improve environmental education and training of the workforce;
- share environmental experience;
- promote involvement of and communication with interested parties;
- work with local communities toward sustainable development; and
- encourage the use of EMS by suppliers and contractors.[11]

Anything you include in the policy is subject to audit. If you commit to something, you must follow through and be able to prove it.

Staffing and Finalizing the Policy Statement: In most cases, the EMSMR is responsible for drafting a new or revised environmental policy. After completing the draft, staff the policy according to your district's staffing guidance. Staffing is essential for obtaining constructive input and commitment from those who will implement the policy. The garrison commander will want to ensure that key subordinates and the installation's major tenant commanders understand and support the environmental policy.

Step 11. Plan and conduct EMS awareness training (by 30 March 2005).

Training, Awareness and Competence, ISO 14001, Section 4.4.2

Objective: Plan and complete EMS awareness training to meet ISO 14001 requirements. ISO 14001 addresses awareness and

competency training in the same section, but does not clearly distinguish between the two. The USACE has decided to address awareness training early in the implementation process to prepare and educate all element personnel on

[11] ISO 14004, Section 4.1.4, p. 7.

the basic concept of the EMS and how it might generally affect them. Competency-based training addresses job-specific issues and occurs later in the implementation process, after key elements of the EMS are already in place.

> This is *not* the same as the *competency-based* environmental training, covered in Step 24, which ISO 14001, Section 4.4.2, also requires.

Importance: One of the great benefits of implementing an EMS is that it educates and empowers employees so *everyone* (not just the environmental personnel) can find ways to improve environmental performance. The purpose of EMS awareness training is to create a basic awareness and understanding of EMS principles. Elements must complete all EMS awareness training requirements by 31 December 2005. The purpose of this general environmental awareness training is to:

- gain commitment to the environmental policy;
- gain commitment to achieving organization objectives and targets; and
- instill a sense of individual responsibility.[12]

The EMSMR should work with the CFT to plan and conduct EMS awareness training annually for all element personnel. The CFT is responsible for identifying training needs; establishing and maintaining procedures for conducting training; and keeping records of the training that has been completed.
The first time you conduct awareness training, your EMS will probably not be complete and all the elements and requirements of your EMS will not be in place. Therefore, you may not be able to address all the requirements of ISO 14001 Section 4.4.2 in the initial training sessions. Simply tell the attendees that some parts of the EMS are still being developed and they will receive additional guidance during refresher awareness training. As new EMS elements are implemented, they must be incorporated into subsequent presentations of the awareness training to fully comply with the ISO 14001 requirement (by 2009). For EMS awareness training content, consider using some of the same training sources that you used in previous steps (see Step 3 for the CFT training).

Required Elements: Awareness training is intended to be general in nature. Remember that individuals whose work has a direct impact on the environment will later receive specialized competency-based training. The required elements of EMS awareness training include:

- discussion of the district's environmental policy and the importance of conformance with the policy and its associated procedures;

[12] ISO 14004, Section 4.3.2.4, p. 16.

- what an EMS is, why the element needs one, and how the EMS procedures and requirements help protect the environment;
- examples of relationships between typical work or mission activities and significant environmental impacts;
- what individuals can (and are expected to) do to protect the environment;
- roles and responsibilities in achieving conformance with the environmental policy and procedures and the EMS requirements, including emergency preparedness and response; and
- the potential consequences of departure from operating procedures.[13]

Optional Elements: Optional elements of the EMS awareness training include:

- USACE and related environmental policies;
- possible actions to minimize or eliminate environmental impacts and how each employee can contribute;
- the importance of compliance with standard operating procedures (SOPs) and regulatory requirements;
- the overall improvement of the element's environmental performance; and
- involvement of the local community and other interested parties.[14]

Key Actions: Take the following steps to implement EMS awareness training:

- **Meet with the training managers at your element.** Discuss the requirements for EMS awareness training, the resources available, and what needs to be done. In most cases, they will assist you in scheduling and arranging the training sessions and notifying attendees. You may choose to incorporate EMS awareness training into regularly scheduled training events, such as unit training days. You may also have access to computer-based training resources or closed circuit television systems. Always remember that EMS must be fully integrated into the element's business processes and should therefore be a standard part of the element's training requirements.

- **Schedule and initiate awareness training.**
  - Start EMS awareness training as soon as the environmental policy has been updated and signed. You may have to schedule multiple training sessions to accommodate all the employees who require the training.
  - The awareness training does not have to be conducted in a classroom. Consider alternatives, such as computer-based training (CBT), resources listed on the Defense Environmental Network and Information Exchange (DENIX), training workshops, and videos.

- **Maintain records of EMS training.** These records can be centrally managed at the element's training office or elsewhere. They must be kept current and readily

[13] ISO 14001, Section 4.4.2, p. 3.

[14] Concurrent Technologies Corporation for U. S. Army, Environmental Management System Guidance Manual: *Implementing ISO 14001,* p. 33.

Example

At one large facility, all EMS awareness training is provided via CBT. The training materials have been placed on the facility's main computer server. Employees log on and go through the training materials, which typically requires about 1 hour. The computerized training program tracks who has taken the training and each person's test scores, thus providing the necessary training records.

Environmental awareness classes provided by one global company use multiple-choice tests to give the instructor an idea of the staff's level of understanding and help the employees become more knowledgeable. This company also observed that as employees learn more about the organization and what it does to protect the environment, their sense of ownership grows.

available for review or audit, and their location must be specified in the EMS Records procedures (see Step 26).

- **Ensure the continuing adequacy of EMS training.** Offer training frequently to reach new employees, transfers between departments and new contractors.

- **Update and maintain training materials.** Establishing standardized training materials, and periodically reviewing and updating them, will help keep the training relevant as situations, missions, and organizations change. It will also help keep the training consistent, even if different instructors or presentation media are used. It also provides a good overview of training content for auditors or other interested parties. Procedures for maintaining, reviewing, and updating the training materials should be included in your EMS document control procedures (see Step 13).

Step 12. Initiate EMS documentation.

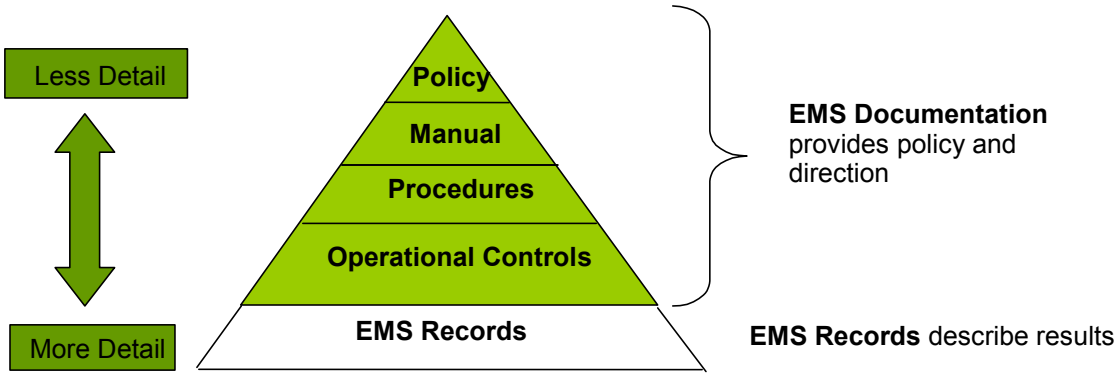
EMS Documentation, ISO 14001. Section 4.4.4

Objective: Design a standardized framework your element will use to develop and organize the various types of documentation required by ISO 14001.

Importance: Complete, well-organized documentation is essential for describing, managing, evaluating, and improving the EMS. EMS documentation provides a written description of your element's EMS and directions for how things should be done. Developing EMS documentation is an ongoing process. Some of the required documentation already exists for your element—you just need find it, review it, and ensure that it is kept current. Other parts of the documentation required by ISO 14001 will take time to develop. The following subsections describe the types of EMS documentation required. You can now start to develop and organize it.

Documentation Hierarchy: Think of EMS documentation as a tiered system, as shown in Figure 2-2.

Figure 2-2. EMS Document Hierarchy



Four types of EMS documentation typically constitute the hierarchy. (Records are not considered part of documentation.) As you move down the pyramid, the amount of information, degree of specificity, and number of pages generally increase.

Environmental Policy: The first level of documentation is the environmental policy—a statement of the installation's mission, intentions, and principles related to its environmental performance. (You completed the environmental policy in Step 10.)

EMS Manual: The EMS manual is the central document that describes core elements of the EMS and how they fit together. The ISO 14001 specification does not specifically require a manual, but a manual provides a simple and effective solution for achieving conformance with ISO 14001 EMS documentation requirements. The manual provides a roadmap of the element's EMS, briefly addresses each of the elements within the EMS, and clearly outlines the processes the element uses to run the EMS (think of it as an EMS concept of operations). You should now develop an outline for your EMS manual, which lists its basic content:

- Environmental policy
- An outline of the installation environmental management programs
- The location of EMS roles, responsibilities, and authorities
- The location of current EMS objectives and targets
- The location of other documentation, such as emergency response plans, training plans, and sops (consider using a flowchart)
- The location of document control and records procedures
- The location of monitoring, measuring, and corrective action procedures
- The location of information on regulatory and other requirements.[15]

[15] Concurrent Technologies Corporation for U. S. Army, Environmental Management System Guidance Manual: *Implementing ISO 14001,* p. 40; and ISO 14004, Section 4.3.3.2, p. 19.

As you continue implementation of your EMS, you will develop the information and procedures described above. Think about organizing the manual along the lines of the EMS elements shown in Figure 2-1, which address the requirements in ISO 14001. This will help you check your conformance with the ISO 14001 standard.In addition to the EMS manual, the element needs more detailed documentation of its EMS.[17] As you continue with the implementation process, you will create *procedures* for certain elements of the EMS. These procedures are part of the EMS, and your manual should include directions to locate the EMS procedures. As you create area- or activity-specific instructions (SOPs) on certain operations or activities, you may also choose to include their locations in the EMS manual.You will not be able to complete the manual until you finish EMS implementation, but starting it now helps you organize and document ongoing efforts.

EMS Procedures: The third level of documentation is EMS procedures, which describe how to operate and maintain the EMS and define the authority, responsibility, and accountability for implementation and follow-through. Developing and maintaining EMS procedures is mainly the responsibility of the CFT. This guide will prompt you to develop the required EMS procedures as you continue implementation. When you reach the end of this implementation guide, most of your EMS procedures should be completed. As you operate and refine your EMS, you will probably see a need to revise some of the procedures or add new ones to address emerging issues.

Operational Controls (SOPs): The fourth level is the collection of EMS operational controls or Standard Operating Procedures (SOPs). Your installation already has SOPs for most major processes or activities. Supervisors and leaders are responsible for the SOPs in their functional areas. As you implement the EMS, the goal is to ensure the SOPs direct employees to perform their jobs in ways consistent with the installation's environmental policy and the goals and objectives of the EMS. The SOPs should incorporate significant environmental aspects (Step 19), objectives and targets (Step 21) and monitoring and measurement procedures (Step 25) into the daily activities or job practices of installation personnel. CFT members and environmental personnel should work with organization leaders to produce SOPs that support the EMS. These SOPs give specific, detailed instructions that describe the methods for attaining environmental goals and hence complying with environmental policy. Although most SOPs are already in place, reviewing and revising them can be a lengthy process. We

[16] NSF-ISR, *Environmental Management Systems—An Implementation Guide for Small and Medium-Sized Organizations*, p. 47.

[17] NSF-ISR, *Environmental Management Systems—An Implementation Guide for Small and Medium-Sized Organizations*, p. 47.

recommend you develop a prioritized schedule that starts with environmentally significant processes or activities at your element and maintain steady progress toward revising the SOPs. Step 23 provides detailed guidance for developing and revising SOPs.

EMS Records: EMS *records* are not considered part of EMS *documentation*. Documentation describes policies, procedures, and other directive information, while records provide a written history of EMS performance and actions completed (such as training). We detail the EMS records and related ISO 14001 requirements in Step 26. A summary of ISO 14001 requirements for EMS documentation and records is available here.

Step 13. Develop EMS document control procedures.

Document Control, ISO 14001, Sec 4.4.5

Objective: Develop written procedures to ensure proper management of EMS documentation and conform to the ISO14001 standard.

Importance: In order to effectively implement and operate the EMS, personnel must have access to the information they need to do their jobs properly. They need correct and current procedures, instructions, and other reference documents. "Without a mechanism to manage these EMS documents, the organization cannot be sure that people are working with the right tools."[18] To ensure everyone works with the proper documents, you need a procedure to describe how the documents are controlled.

> Because keeping documentation up to date and maintaining it at a central location is difficult, you may (and are encouraged to) use electronic systems to manage your EMS documentation. The feasibility of using an electronic format depends on your element's computer network and the degree of employee access to the system. If your element is already using an electronic document management system, you should try to use it, if possible. If you plan to purchase a new document control system for the EMS, be sure that it meets your needs and is compatible with other systems already in use.

Requirements: ISO 14001 requires only that organizations "establish and maintain" document control procedures. We recommend these procedures be written and maintained as part of the EMS documentation. Your document control procedure should ensure that documents:

[18] NSF-ISR, *Environmental Management Systems—An Implementation Guide for Small and Medium-Sized Organizations*, p. 50.

- can be easily located and accessed (employees must know where to find them);
- are kept current (the latest version or revision);
- are kept as paper or electronic copies (but paper copies must be kept up to date, controlled, and effectively managed in a central location);
- are periodically reviewed, revised as needed, and approved by appropriate personnel (check to make sure documents are still valid);
- are available at all locations where operations essential to the effective functioning of the EMS are performed (make sure the people who need the documents have access);
- that are obsolete are promptly removed from all points of issue and points of use, or otherwise kept from unintended use (prevent people from using the wrong document); and
- are suitably identified if obsolete and retained for legal reasons or knowledge preservation.

Try to keep your system as simple as possible, including only documents that need to be controlled. You can quickly overwhelm the system by including unnecessary documents. Ensure that everyone knows how to use the system and understands their individual responsibilities for maintaining the system. Among others, the following EMS documents should be managed under the document control system:

- Environmental policy
- Aspects and impacts analysis data and results
- Environmental management program documents
- Objectives and targets
- Roles, responsibilities, and authorities
- EMS manual
- EMS procedures
- Process- or activity-level procedures
- Related plans (such as emergency response plans). [19]

Step 14. Establish communications procedures.

Communication ISO 14001, Section 4.4.3

Objective: Develop procedures for internal and external communication of EMS information, as required by the ISO14001 standard. ISO 14001 requires only that the organization *establish and maintain* procedures for communication and does not require documentation. However, we *recommend* that you document (write down) communication procedures if you want personnel to universally understand and consistently follow the procedures.

[19] NSF-ISR, *Environmental Management Systems—An Implementation Guide for Small and Medium-Sized Organizations*, p. 51.

Importance: Good communication, within the element and to external interested parties, is essential for developing and implementing the EMS. "Effective environmental management requires effective communications, both internally and externally."[20] The element must establish and maintain two different types of communications procedures:

- Internal communications between the various levels and functions on the installation, and
- External communications.

Most elements already have basic communications procedures in place. If that is the case, you need only revise the procedures to address EMS information.

Internal Communications: Internal communications include verbal communication (staff meetings, brown bag lunches, training, etc.), e-mail, intranet, memoranda, newsletters, posters, and bulletin boards. When developing the procedures, take advantage of existing communications channels and consider how different target audiences on the installation access or distribute information. Some employees may not have consistent access to a computer for e-mail and intranet-based information, so multiple types of communication may have to be used. The following information needs to be communicated internally:

- Information on day-to-day EMS operations, including the environmental policy and how it will be publicly available
- General EMS education and awareness information, including the process for receiving and responding to the concerns of employees and other interested parties
- Environmental regulatory reporting requirements
- How to achieve objectives and targets
- Environmental incidents
- Environmental aspects
- Personnel responsible for various parts of the EMS
- How the EMS will be monitored
- EMS audit results and results, including the process for making all personnel aware of those results (communicated through the EQCC)
- The management review cycle.

External Communications: You need an effective procedure for dealing with external communications. The installation must establish procedures describing how it distributes information to the public and how it receives, documents, and responds to relevant communication from different types of external interested parties. The procedure should clearly identify the information to be made

[20] NSF-ISR, *Environmental Management Systems—An Implementation Guide for Small and Medium-Sized Organizations*, p. 43.

available to the public. ISO 14001 requires only that the environmental policy be made available, but some installations also include the following:

- Environmental aspects and impacts
- Installation environmental objectives and targets
- Meeting minutes
- Permits
- Compliance information, such as fines and NOVs.

The PAO coordinates external communications and is probably the best external point of contact (POC). Consult the public affairs office (PAO and office of before deciding what information to release. In addition to listing the publicly available information, document how you make it available and how frequently your element updates it. The district leadership determines whether the installation initiates and establishes external communication of the element's significant aspects (see Step 19). USACE elements are *not required* to publicly communicate this information. We recommend you decide in advance what information will be shared with the public and record your decision. If you choose, you can share EMS information by various means:

- Reports and newsletters
- Press releases in newspapers, in magazines, or on television
- Websites
- Public meetings.

Although it is not an ISO 14001 requirement, we recommend you document the internal and external communications procedures, including

- who manages inquiries and the flow of information,
- who is responsible for preparing and approving responses, and
- types of information to be communicated.

Written communications procedures should be maintained in accordance with the element's document control procedures. Effective internal and external environmental communication and reporting has the following characteristics:

- It is two-way.
- Information is understandable and adequately explained.
- Information is verifiable.
- It presents an accurate picture of the organization's performance.
- Information is presented in a consistent form (for example, similar units of measure to allow comparison of two periods).[22]

[21] NSF-ISR, *Environmental Management Systems—An Implementation Guide for Small and Medium-Sized Organizations*, p. 44.

[22] ISO 14004, Section 4.3.3.1, p. 18.

Contact POA for procedures for external communications procedure document.

Step 15. Compile legal and other requirements.

Legal and Other Requirements, ISO 14001, Section 4.3.2

Objective: Develop a written procedure to compile and keep current all legal and other requirements pertaining to installation environmental issues. ISO 14001 requires only that the organization *establish and maintain* procedures pertaining to legal and other requirements and does not require documentation. However, we *recommend* that you document the procedure to ensure it is periodically reviewed and revised as needed.

Importance: Legal and other requirements are part of the baseline for your EMS. As your element performs its mission activities, everyone must be aware of the environmental regulations and other requirements that they must meet. In addition, the revised environmental policy (developed in Step 10) requires a commitment to legal and other requirements. To fulfill this commitment, your organization needs to know the legal requirements that apply to your operations, activities, or services and how they affect what you do.[23] Your element probably already has a process for identifying legal and other requirements that pertain to environmental issues. In this step, you review the process to ensure that it captures all the applicable laws and regulations. Your element does not have to commit to additional voluntary requirements not mandated by law or Army policies. However, if your installation has previously volunteered or subscribed to other requirements, you must follow through on that commitment. This commitment also holds if you plan to participate in such activities in the future.[24] As you review your current process for identifying legal and regulatory requirements, make sure it meets the following criteria:

- Identifies relevant requirements, including state and local.
- Identifies proposed requirements and changes to existing ones.
- Describes a process for reviewing and analyzing requirements to determine potential impacts on installation activities, including who reviews and how results are recorded and communicated.
- Is properly documented and sufficiently detailed.
- Is stored and maintained in accordance with your EMS document control procedure. [25]

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[23] PEER Center, *How to Implement an EMS* [on-line document], undated [cited February 2003]. Available from http://www.peercenter.net/howtoimplement/.

[24] Concurrent Technologies Corporation for U. S. Army, Environmental Management System Guidance Manual: *Implementing ISO 14001*, p. 16.

[25] ISO14004, Section 4.2.3, p. 9.

Legal requirements include all federal, state, and local legislative and regulatory environmental requirements that apply to your operations, including all DoD, Army and USACE policies and regulations. They also include administrative requirements, such as permits, authorizations, licenses, records, reporting, and environmental plans.

Other requirements include voluntary obligations to which the organization commits, including the following:

- Industry standards of practice, such as American National Standards Institute (ANSI) and ASTM standards
- Agreements with public authorities, such as consent decrees and U.S. Environmental Protection Agency (EPA) programs
- Internal installation requirements, such as ISO 9000
- Environmental management principles.

Table 2-1 lists laws and regulations that govern common activities at Army installations. The environmental management office should be able to provide a list of applicable environmental regulations. The following sources can also help identify legal requirements:

- AR 200-1, 200-2
- DENIX
- District Office of Counsel
- Federal, state, and local governmental agencies
- Commercial databases
- Professional services, including environmental consultants and law firms
- ERGO Manuals
- Publications that pertain to self-compliance audits or environmental checklists.[26]

Table 2-1. Federal Laws and Regulations

Federal laws and regulations	Common activities
Clean Air Act (CAA), 40 CFR Parts 50–99	Air emissions, including ozone depleting chemicals (ODCs) from operations, stack or fugitive emissions, equipment, and stored chemicals or fuel

[26] Concurrent Technologies Corporation for U. S. Army, Environmental Management System Guidance Manual: *Implementing ISO 14001*, p. 17.

Clean Water Act (CWA), 40 CFR parts 100–145, 220–232, 410–471	Water discharges, including storm water, wastewater, and sewage. Chemical or hazardous material or waste, or energy resources (such as coal and petroleum fuels) storage
Resource Conservation and Recovery Act (RCRA), 40 CFR Parts 240–299	Hazardous waste generation, storage, handling, transport, or disposal. Solid waste related activities, including sanitary landfills and recycling and waste minimization programs. Underground storage tanks.
Spill Prevention, Control, and Countermeasures (SPCC), 40 CFR Parts 112–114	Storage, handling, or transport of oil of any kind, including petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes, other than dredge spoils.
Toxic Substances Control Act (TSCA), 40 CFR Parts 700–799	Manufacture, process, distribution, use, or disposal of TSCA-regulated chemicals.
Comprehensive Environmental Response, Compensation and Liability Act (CERCLA, also known as Superfund), 40 CFR Parts 300–311	Releases of hazardous substances needing to be reported under CERCLA. Contaminated site cleanup.
Emergency Planning and Community Right-To-Know Act (EPCRA, also known as SARA Title III), 40 CFR Parts 350–374	Toxic chemical or extremely hazardous substance use (according to EPA's list).
Hazardous Materials Transportation Act (HMTA), 49 CFR Parts 100–180	Toxic chemical or extremely hazardous substance (according to EPA's list) transport, processes, use, or storage.
Safe Drinking Water Act (SDWA), 40 CFR Parts 141–149	Drinking water systems, underground injection, wellhead protection or cross-connection control, and backflow prevention.
AR200-4	Cultural resources management
Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), 40 CFR parts 150–171	Pest management
Endangered Species Act (ESA), 16 USC 1531 et seq.	Threatened and endangered species, critical habitat, or associated initiatives
Sikes Act, 16 USC 670a–670f	Natural resources management
AR200-3	Natural resources management
Noise Control Act (NCA)	Noise mitigation, monitoring, and management
EO 13148 "Greening the Government Through Environmental Management" and Pollution Prevention Act	Pollution prevention activities versus compliance-based solutions, priority chemical use reduction, pollution prevention plans

Complete Aspects and Impacts Analysis and Develop Prioritized Aspect List (Steps 16–19) (by 30 March 2005)

Environmental Aspects
ISO 14001, Section 4.3.1

Steps 16 through 19 collectively identify the significant environmental aspects resulting from your element's activities, products, and services:

- Step 16. Identify all mission and element activities, products, and services.
- Step 17. Identify the environmental aspects of your element's activities, products, and services.
- Step 18. Identify the environmental impacts of each aspect.
- Step 19. Identify significant environmental aspects.

The identification of significant environmental aspects is critical in developing your EMS because they provide the basis for establishing environmental management programs, developing objectives and targets, identifying training requirements, determining requirements for operational controls and work procedures (such as SOPs), performing general risk assessments, and completing periodic management reviews. These steps have proven the most difficult for organizations to implement because the methods used can vary widely in detail and complexity and can quickly snowball if you don't tailor your approach to capture the most significant aspects before you exhaust available time and resources. The recommended procedures that follow will help you achieve maximum effectiveness with minimum complexity. ISO 14001 requires only that organizations *establish and maintain* procedures to identify environmental aspects, but we *recommend* that you develop written documentation for these procedures to help ensure consistency and understanding.

Step 16. Identify all mission and installation activities, products, and services.

Objective: Identify all major element activities, products and services for consideration in the aspects and impacts analysis.

Importance: Activities, products, and services provide the basis for identifying environmental aspects and impacts. This step will particularly challenge the CFT because of the sheer numbers of activities at an element and the variety of missions and functions they incorporate. Executing assigned missions and functions usually involves undertaking a number of different activities; procuring, using, and developing specific products; and providing services daily in support of the operational readiness mission and routine operations functions.

Mission or Functional Areas and Associated Processes: Before defining activities, products, and services, you need to understand the various mission and functional areas and associated processes that organizations undertake across the element. Table 2-2 shows typical mission and functional areas and associated processes at the installation level.

Activities, Products, and Services: Within each mission or functional area, a number of major processes are likely. For example, within the transportation equipment functional area, a typical element process might be to conduct vehicle

maintenance operations (including when the maintenance is contracted out). At the next level, conducting vehicle maintenance operations might involve a number of specific activities, products, and services.

Table 2-2. Example Mission or Functional Areas and Their Processes

Mission or functional area	Description of associated processes
Weapons system acquisition	Major systems acquisition phases of concept and technology development, system development and demonstration, production and deployment, operations and support, and demilitarization and disposal Example: Demilitarization and disposal of excess or waste munitions
Logistics support	Acquisition, storage, distribution, and recovery of all classes of supply; maintenance of materials and equipment; transportation of personnel and materiel; provision of support services such as food, commissaries, laundries, and property disposal; and facilities (real property) operation and maintenance, including utilities, minor construction, and general engineering support Example: Ammunition supply operations
Training	Providing and conducting individual, functional, and organizational (tactical and nontactical) training Example: Conducting basic training
Infrastructure development and maintenance	Processes required to operate the total system of facilities; buildings; structures; horizontal transportation facilities (roads, railroads, bridges, dams, and airfields); utility, transport, and communication systems; ranges and other training areas; ports; airfields; and associated lands and equipment Example: Road maintenance
Industrial operations	Manufacture of commodities, equipment, and weapons systems Example: Manufacturing small arms ammunition
Base operations	Processes required to support the missions and functions of assigned and tenant units and activities at the installation level Example: Providing and maintaining troop housing
Health and medical support	Providing general health care and medical and dental support to personnel and operating and maintaining Army hospitals, medical centers, dental and veterinary clinics, medical treatment facilities, and supporting laboratories Example: Providing outpatient medical services
Transportation equipment	Operation of tactical and nontactical vehicles, fixed and rotary wing aircraft, rail systems, watercraft, and supporting maintenance operations Example: Perform vehicle maintenance
Mobilization and deployment	Assembly and organization of material and personnel resources in response to war or other emergencies, and the physical movement of those resources to the theater of operations Example: Railhead operations
Research, development, testing, and evaluation (RDT&E)	Testing and evaluation of materiel, equipment, and weapons systems at Army proving grounds, laboratories, and related facilities Example: Development of new flameless ration heater

Note: The list is not all inclusive and varies from one installation to another.

Activities related to vehicle maintenance include changing oil, lubricating chassis, replacing brake linings, and rebuilding engines. Products that might be used or

provided include oil, solvents, grease, and repair parts.[27] Provided services could include vehicle washing and operator maintenance training.
Another example is the element's operations functional area. Typical projects processes include operating a water or wastewater treatment plant, power generation facility, or various maintenance shops. Activities include primary and secondary treatment of wastewater, operating boilers to power generators, or operating a paint booth to paint parts. Products include potable water, while products used include water, fossil fuels, and various chemicals. Provided services include electric power, potable water distribution, solid waste disposal, and recycling. As illustrated by these examples, "activity" generally refers to a major element of a process undertaken to achieve the mission, a desired objective, or end state. "Product" refers to any commodity or item used, consumed, or created (for example, ammunition manufactured at an industrial facility) during a process. "Service" refers to useful labor or efforts that do not necessarily produce a tangible commodity, but otherwise provide value to a customer. A fine line distinguishes an activity, product, or service. What one views as an activity, another may see as a product or service. Do not allow this to become problematic. Identifying all key elements of the major installation processes for subsequent use in aspects and impacts analysis is the key.

Scoping: Clearly, the total number of processes, activities, products, and services at a major element can be very large. Be sure that you do not go into too much detail or list elements of work as activities. (The steps involved in changing vehicle fluids aren't activities.) Also, keep in mind that you should identify *major* processes and related activities, products, and services only. 100 to 200 activities could be possible at a large project or facility, but even that relatively small number engenders much work completing the aspects and impacts analysis and subsequent EMS implementation steps. For this reason, an element may decide to limit the scope of initial EMS implementation to one or two mission or functional areas, and then gradually expand the EMS to the other areas. Fort Lewis, WA, took this approach by starting EMS implementation in the directorate of public works (DPW). Now that the complete system is in place at the DPW, Fort Lewis is working to bring in other organizations and functions across the installation.

> Regardless of your approach, you must ensure that all element organizations, activities, and lessees are covered under the broad umbrella of the element EMS by 31 December 2005.

Getting Started: To do a thorough job of identifying all element activities, products, and services, you should start by compiling as much information as possible, beginning at the process level and working down. Identify every

[27] Products can also be defined as tangible results of a process that turns inputs (such as raw materials) into outputs (such as power production).

organization within the element "fence line", including lessees. (You accomplished this in Step 9 when you identified mission focus.)
Once you have identified every organization and lessee, you should learn as much as possible about their missions, functions, and inherent processes. (Again, you should have already done a much of this in Step 9.) National Environmental Policy Act (NEPA) documents and other historical assessment records can assist in defining processes and associated impacts and aspects. You can assign responsibility for specific mission or functional areas to CFT members. When feasible, CFT experts in functions (such as powerplant, operations, etc.) should be assigned responsibility for compiling information on those functional areas. Unfortunately, since the number of functional areas usually exceeds the number of CFT members, some members must compile information on areas with which they are less familiar. They have to do the best they can by gathering as much information as possible with the time and resources available. Regardless of the approach and sources used, the goal is to compile a comprehensive listing of all *major* activities, products, and services by mission or functional area and process.

Identify all missions, functions, processes, and activities subject to environmental regulations or permits. Members of the environmental staff can assist.

Compiling Information and Keeping Records: The CFT members should compile activities, products, and services for their assigned mission or functional areas using a simple Excel spreadsheet to capture information. This will enable the CFT to readily compile, revise, and manipulate information to perform various analyses or future revisions. To view a sample Excel form (with a few entries) for collecting this information, click here.

Step 17. Identify the environmental aspects of your installation's activities, products, and services that can be controlled or influenced.

Objective: Examine your list of major activities, products, and services and identify the associated environmental aspects that can reasonably be controlled or managed.

Definitions and Examples: Once you have listed the element's major activities, products, and services, you must identify the environmental aspects associated with them. ISO 14001 defines environmental aspects as "elements of an organization's activities, products, and services which can interact with the environment." An environmental aspect signifies the potential for an environmental impact, whether good or bad. Environmental aspects are the cause component of a cause-and-effect relationship (with the resulting environmental impact being the effect, as discussed in the next step). Generally,

the environmental aspects of USACE element activities, products, and services fall into one or more of the following categories:

- Air emissions (fugitive or stationary), such as particulate matter, open burning, vehicle exhaust, dust, combustion gases, smoke from prescribed burning, dust, and noise.
- Hazardous waste generation, such as various types of industrial and hazardous wastes, contaminated containers, and solvents.
- Non-hazardous waste generation, such as solid waste.
- Uncontrolled releases to air, water, or ground, such as lead and migrating pollutants from large paint jobs.
- Spills to water or ground, such as fuel or petroleum, oil, or lubricant (POL) spills, hydraulic fluid leaks, storage tank leaks.
- Discharges (point and non-point) to ground or surface waters, including sewage, sediment, and other wastes.
- Storm and waste water discharges to surface water.
- Energy consumption or conservation, including electricity, petroleum-based, and alternative fuels.
- Natural resource and raw material consumption or conservation, including water, timber, minerals, and soil.
- Ecological resource degradation or conservation, such as wetland protection or destruction and endangered species.
- Natural resource degradation or conservation, including ground disturbance, hydrological alteration, and vegetation alteration.
- Cultural resource degradation or conservation, including historic properties, archeological sites, and more traditional cultural resources.
- Generation of heat or radiation.

You are only required to identify the aspects (and related impacts) that you can control or influence. For example, consider the environmental aspects of vehicle maintenance activities, products, and services presented and discussed in Step 16. Table 2-3 summarizes them.

Table 2-3. Environmental Aspects of Vehicle Maintenance Activities

Activity, product, or service	Environmental aspects
Change fluids	Spills (oil or antifreeze) Discharge to ground or surface water (storm water discharge) Nonhazardous waste generation (used oil, oily rags, etc.) Resource use (petroleum, antifreeze) Resource conservation (if oil or antifreeze is recycled)
Lubricate chassis	Nonhazardous waste generation (greasy rags) Spills (grease) Discharge to ground or surface water (storm water discharge)
Replace brake linings	Air emissions (brake dust) Solid waste generation (old linings) Resource conservation (if linings are recycled)

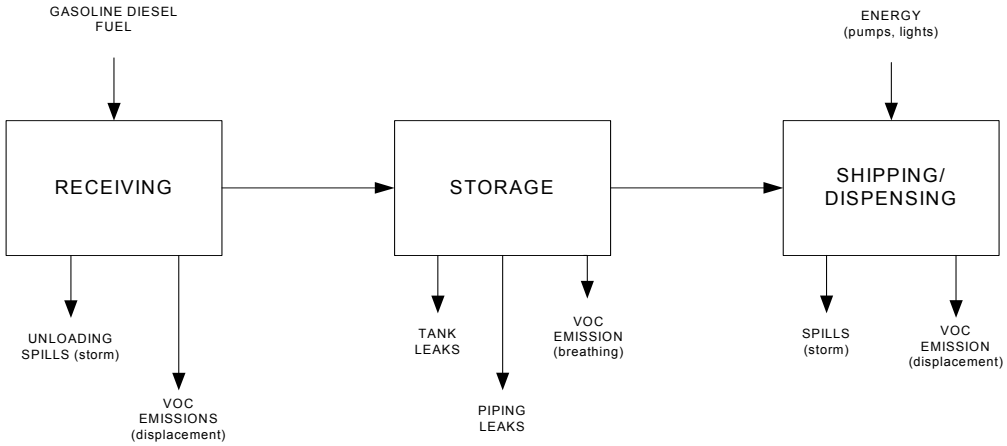
Clean and degrease parts	Air emissions (volatile organic compounds [VOCs] from solvent) Spills (solvent) Hazardous waste generation (spent solvent) Resource conservation (if spent solvent is recycled)
Wash vehicles	Discharge to ground or surface water (storm water discharge) Resource use (water, electricity) Resource conservation (if wastewater is recycled and reused on site)

Strategies for Identifying Environmental Aspects: Now that you understand environmental aspects in general terms, what is the best way to go about identifying them? Once again, you primarily rely on the CFT members who are identifying the activities, products, and services information. In instances where they are in fact mission or functional area experts, they should be able to readily identify the environmental aspects for the various activities, products, and services. If they are not experts themselves, then they will have to consult other element experts and have them describe how their activities, products, and services may interact with the environment. In addition, other information sources are available to gain insight into environmental aspects. These include the following:

- Previous aspects and impacts evaluations
- Process flow charts and hazard analyses
- Air emissions inventories
- National Environmental Policy Act (NEPA) studies (environmental assessments or environmental impact statements)
- Product economic analyses
- Facility pollution prevention and waste minimization plans and audits
- ERGO reports and corrective action plans
- Environmental site assessments
- Risk assessments
- Environmental cost accounting records
- Project safety and hazard reviews.

Process Flow Charts: It may be helpful to prepare simple process flow charts that capture inputs and outputs for the various activities, products, and services. For example, Figure 2-3 shows another logistics function, fuel storage and dispensing operations, which includes fuel receipt, storage, and shipping and dispensing activities.

Figure 2-3. Fuel Storage and Dispensing Operations



By laying the process out in this way, you can easily conceptualize the resource inputs to each activity and the manner in which each activity interacts with the environment. Whether or not you use this approach is purely a matter of preference.

Tips and Tools: Regardless of your approach, as you identify specific aspects, you should try to capture as much related quantitative information as possible. For example, if an activity generates waste solvent, estimate the total amount (for example, 100 gallons per month). Other information that should be captured includes specific legal and other requirements that may apply, permits in force, special record-keeping requirements, pollution controls or equipment in use, best management practices that are currently employed, regulatory monitoring requirements, etc. This information will help you identify environmental impacts and determine their significance. As you identify environmental aspects, you must include *all* mission and functional areas. To view an example of an environmental aspects worksheet completed for one of the previously presented vehicle maintenance activities, click here.

Step 18. Identify the environmental impacts of each aspect.

Objective: For each activity, product, or service identified in Step 16, determine what environmental impacts might reasonably be produced by the associated aspects.

Definitions and examples: Once you have identified the environmental aspects of the element's major activities, products, and services, you must next identify the environmental impacts associated with them. ISO 14001 defines an environmental impact as "any change to the environment, whether adverse or

Table 2-4. Environmental Aspects and Impacts of Vehicle Maintenance Activities

Activity, product, or service	Environmental aspect	Environmental impact
1. Change fluids	Oil or antifreeze spills Storm water discharge Nonhazardous waste generation (used oil, oily rags, etc.) Resource use (petroleum, antifreeze) Resource conservation (if oil or antifreeze is recycled)	Contaminated water or soil Contaminated surface water Solid waste disposal Depleted petroleum reserves and virgin antifreeze supplies Petroleum reserves last longer; less virgin antifreeze needed
2. Lubricate chassis	Nonhazardous waste generation (greasy rags) Grease spills Storm water discharge	Solid waste disposal Contaminated water or ground Contaminated storm water
3. Replace brake linings	Air emissions (brake dust) Solid waste generation (old linings) Resource conservation (if linings are recycled)	Reduced air quality Solid waste disposal Reduced resource use (virgin metals and other components)
4. Clean/degrease parts	Air emissions (VOCs from solvent) Solvent spills Hazardous waste generation (spent solvent) Resource conservation (if spent solvent is recycled)	Reduced air quality Contaminated water or ground Hazardous waste disposal Reduced disposal requirements
5. Wash vehicles	Wastewater discharge Resource use (water, electricity) Resource conservation (if wastewater is recycled and reused on site)	Wastewater treatment Depleted water, electricity Increased potable water availability

beneficial, wholly or partially resulting from an organization's activities, products, or services." For example, Table 2-4 summarizes some of the environmental aspects and impacts of the vehicle maintenance activities, products, and services discussed in Steps 16 and 17. As illustrated by this example, environmental impacts are the effect component of a cause-and-effect relationship. Generally, the environmental impacts of Army installation activities, products, and services fall into one or more of the following categories:

- Air, water, and ground pollution and associated reductions in environmental quality (such as ozone depletion)
- Energy consumption (or conservation as a positive impact)
- Natural resource depletion or conservation
- Cultural resource damage or destruction
- Damage to the natural environment (such as ground disturbance, erosion, and tree and vegetation loss)
- Hazardous waste disposal
- Solid waste disposal (or recycling and reuse as a positive impact)
- Sewage disposal
- Nuisances to local communities.
- Storm and Waste Water disposal/discharge

Strategies for Identifying Environmental Impacts: Now that you have a general picture of environmental impacts, what is the best way to identify them? As with previous steps, the expertise you need primarily resides with the CFT members. Representatives from the environmental functional area probably know the most about environmental issues, applicable regulatory requirements, resource (air, water, soil) sensitivities to harmful emissions or discharges, local community concerns, etc. One approach is to have the environmental staff members facilitate a structured CFT brainstorming session to analyze each aspect for potential impacts, including a team review of the activities involved and process inputs and outputs. Although some team members are not environmental professionals, with a little investigative questioning and group discussion, those who know the activity itself should be able to lend insight into how it affects the environment. Have a staff member take detailed minutes of the discussion, review decisions, and action items. The CFT should work through the process by mission and functional area, capturing the results as they are developed. For example, begin by looking at the logistics support mission and functional area, evaluating each activity, product, and service and its identified environmental aspects. After identifying and documenting all associated environmental impacts, move on to the next mission and functional area. As in previous steps, compile your results on a spreadsheet. To view an example environmental aspects and impacts worksheet with a few data entries for the vehicle maintenance process, click here. This form includes columns on the far right used to evaluate the significance of environmental impacts and related aspects. You should ignore those columns until you get to the next step.

Step 19. Identify significant environmental aspects.

Objective: Establish, use, and maintain a procedure to examine and prioritize the environmental impacts and aspects identified earlier and determine which are significant. Although the ISO 14001 standard does not require documentation of the procedure, It is recommended that you maintain written documentation to ensure consistency in execution.

Definition: A significant environmental aspect is an aspect that has or can have significant environmental impact. As stated earlier, your significant environmental aspects form the basis for establishing your environmental management programs (EMPs) (Step 20) and objectives and targets (Step 21).

Determining Significance: Once you have identified all environmental aspects and associated impacts for your activities, products, and services, you must then determine which environmental aspects are *significant.* ISO 14001 does not specify how an organization should determine which impacts are significant because the relative significance of an impact can vary widely from one organization to another, depending on environmental and business concerns and

other site-specific considerations. However, the ISO 14004 companion document to ISO 14001 does list several environmental and business related factors that an organization can consider in evaluating the significance of an environmental impact, including the following:

- Environmental considerations
- Scale of the impact
- Severity of the impact or potential impact
- Probability of occurrence
- Duration of the impact
- Frequency of the impact or potential impact
- Location of the facility (for example, in an environmentally sensitive area)
- Scope of the impact (local, regional, or global).
- Business considerations
- Potential regulatory and legal exposure
- Difficulty of changing the impact
- Cost of mitigating the impact
- Effect of change on other activities and processes
- Concerns of interested parties
- Effect on the organization's public image
- Return on investment of the cost to mitigate the impact.

USACE elements must also consider the affect on mission accomplishment of any restrictions imposed because of the impact (for example, hazardous waste generator status limitations may limit your ability to perform critical activities such as painting operations, equipment maintenance, etc.)

Identifying Rating Factors and Numerical Ratings: A commonly used approach to determining the significance of environmental impacts employs a simple numerical rating system. You identify a number of rating factors (considerations), define numerical ratings, and use an algorithm incorporating those factors and ratings to calculate a significance score for each impact. You then can sort and rank impacts by a relative significance score and make a combination of objective and subjective judgments to determine the significant impacts. The greater the number of rating factors used, the more difficult it is to develop an easy-to-use, structured process for impact evaluation. As a starting point, try limiting the number to five. Good choices are the following:

- Environmental impact frequency or likelihood
- Environmental impact severity
- Mission impact severity (if the impact results in mission constraints, or if the organization cannot perform, produce, or provide the activity, product, or service at all)
- Regulatory status
- Community concerns.

After selecting the rating factors you will use, define the numerical ratings that will apply. For the five rating factors shown above, Tables 2-5 through 2-9 provide some suggested numerical ratings. You may modify these as you see fit on the basis of your own unique situation or experience.

Frequency or Likelihood: The probability that an impact might occur, or how often it actually occurs will affect the significance of the impact.

Table 2-5. Sample Rating Factors for Frequency or Likelihood of Environmental Impact

Frequency or likelihood (F) scale
5 = Continuous—ongoing or daily.
4 = Frequent—more than once per month.
3 = Infrequent—more than once per year, less than once per month.
2 = Rare—impact may occur once every year or two.
1 = Never—never occurred or highly unlikely.

Environmental Impact Severity: Table 2-6 provides a suggested format for scoring the potential severity of environmental impacts, assuming they occur. When evaluating environmental impact severity, it may help to consider the following:

- Proximity of the impact to people or environmentally sensitive areas
- Toxicity of substances involved
- Quantities of substances involved
- Effects from startup and shutdown conditions
- Duration of exposure or effects
- Size of the area affected
- Potential for migration of the hazard.

Table 2-6. Sample Rating Factors for Severity of Environmental Impacts or Consequences

Environmental impact severity (E) scale
5 = Severe—immediate threat likely to result in widespread damage to human health or the environment; requires great effort to remediate or correct.
4 = Serious—no immediate health threat, but significantly damages the environment; difficult but possible to remediate.
3 = Moderate—somewhat harmful, but correctable.
2 = Mild—small potential for harm to environment, correctable.
1 = Insignificant—trivial consequences, easily correctable or not impact.

Mission Impact Severity: In Table 2-7, the severity of mission impacts can be influenced by the following:

- Priority or importance of the impacted missions (see Step 9)

- Restriction of specific activities (digging, using smoke, etc.)
- Duration restrictions (such as limiting boiler operations to 12 hours per day)
- Permanent versus temporary closure or restrictions of training areas or industrial processes
- Availability of alternative training sites or training techniques

Table 2-7. Sample Rating Factors for Severity of Mission Impacts

Mission impact severity (M) scale
5 = Loss of ability to accomplish critical mission or near mission failure.
4 = Severely degraded mission capability or serious mission restrictions.
3 = Moderate mission restrictions.
2 = Minor mission impacts or restrictions.
1 = Insignificant mission impacts or restrictions; alternative courses of action are available.
0 = No mission impacts or restrictions.

Regulatory Impact: Impacts subject to federal or state regulations are automatically significant. Situations involving a high risk of noncompliance demand increased priority.

Table 2-8. Sample Rating Factors for Regulatory Status

Regulatory impact ® scale
5 = Regulated—noncompliance condition; actual or possible enforcement action or NOV.
4 = Regulated—generally in compliance, but not completely controlled or managed; some risk of noncompliance in future, or under scrutiny by regulators.
3 = Regulated—in compliance, well controlled or managed; little regulator interest.
2 = Likely to be regulated in future by federal, state, or host nation agency.
1 = Best management practice (BMP) applies.
0 = No requirements apply.

Community Concerns: When determining community concern ratings in Table 2-9, consider the following actions or situations:

- Lawsuits
- Obstruction efforts
- Negative or positive press coverage
- Number and scope of citizen complaints
- Community-generated political or regulator interest
- Level of positive interaction with the local community.

Table 2-9. Sample Rating Factors for Community Concern

Community concern © scale
4 = Public outcry or lawsuits.
3 = Serious community concern, political or activist inquiries, intense negative media.
2 = Moderate community concern, some media coverage.
1 = Community is not currently concerned, but could become so.
0 = Community is ambivalent or unconcerned.

Table 2-9. Sample Rating Factors for Community Concern

Community concern © scale

Calculating Impact Significance Score:

Calculate the impact significance score (*SS*), in the following example, as:

SS = frequency × (*environmental impact severity + mission impact severity*) + *regulatory status + community concern.*

With the rating factors shown, the maximum possible *SS* for any given impact is [5 x (5 + 5) + 5 + 4], or 59.

Examples

1. Assume your project is classified as a small quantity generator (SQG) of hazardous waste. However, the spillway gates require painting which in turn is going to result in the generation of hazardous waste quantities that is going to put you right on the very limit of wastes you can generate and still remain a SQG. This in turn has required the project to cut back on some of its other activities to keep the total amount of waste generated below the SQG threshold. This then results in some degradation of operational capability. No major issues about painting project or SQG status of the project exist within the surrounding community. Given this scenario, you might arrive at the following results:

- Activity, product, or service: hazardous waste generation
- Environmental aspect: hazardous waste disposal
- Environmental impact: increased hazardous waste disposed "into environment"

Impact *SS* determination:

- frequency of impact: 2 (rare – happens every year or so)
- environmental impact severity: 2 (small potential for harm to the environment, correctable)
- mission impact severity: 2 (moderate mission restrictions)
- regulatory status: 4 (in compliance, but strong regulator interest)
- community concern: 0 (public is not concerned).

Applying these ratings to the equation yields the following:

$$SS = frequency \times (environmental\ impact\ severity + mission\ impact\ severity) + regulatory\ status + community\ concern.$$

$$SS = 2 \times (2 + 2) + 4 + 0 = 12$$

2. Assume you are generating substantial quantities of spent solvents across the installation during daily vehicle maintenance parts cleaning activities and that the related environmental aspect you are evaluating is spills. The spent solvents are

not being recycled; consequently, they must be temporarily stored on site until your supporting contractor picks them up and transports them off-site for local disposal in accordance with RCRA. You have been storing and disposing of spent solvents in this manner for many years, having had only two minor spills (less than 10 gallons) within the past year. In those instances, the spills were quickly contained and cleaned up with only minor soil contamination, and no disruption of maintenance operations occurred. However, a larger spill could cause significant contamination of a nearby stream, seriously affecting the local trout fishing industry. For this reason, local regulators are closely watching this activity and have increased the frequency of unannounced inspections. The local community has had minor concerns over the past few years regarding the storage and transport of hazardous materials and wastes and the potential for spills, but restricting parts cleaning activities or general solvent use has not been necessary. Given this scenario, you might arrive at the following results:

- Activity, product, or service: parts cleaning or degreasing
- Environmental aspect: virgin or waste solvent spills
- Environmental impact: contaminated soil or water

Impact *SS* determination:

- Frequency of Impact: 3 (more than once a year, less than once a month)
- Severity of Environmental Impact: 3 (harmful but not immediately fatal to humans or the environment, difficult but possible to remediate)
- Severity of Mission Impact: 0 (no restrictions)
- Regulatory Status: 4 (in compliance, but under scrutiny by regulators)
- Community Concern: 2 (moderate community concern)

Applying these ratings to the equation yields the following:

$$SS = frequency \times (environmental\ impact\ severity + mission\ impact\ severity) + regulatory\ status + community\ concern.$$

$$SS = 3 \times (3 + 0) + 4 + 2 = 15.$$

3. In this final scenario, consider the routine daily vehicle washing activities at the vehicle maintenance facility. The project uses a modern wash rack that collects wastewater and processes it through an oil/water separator before discharge to the local municipal wastewater treatment plant. Dirt, oil, grease, and other harmful wastes are collected from the oil/water separators and disposed of in accordance with applicable regulations. The total quantity of these wastes is generally very small from month to month. No incidents involving harmful discharges from the facility to the publicly owned treatment works (POTW) have occurred in the past 5 years. Regulators do not have a special interest in the vehicle washing facility at this time, and no major issues or concerns about vehicle washing exist in the surrounding community. No restrictions exist on vehicle washing. Restrictions would have little to no mission impact anyway because vehicle washing is not a mission-critical activity.

Given this scenario, you might arrive at the following results:

- Activity, product, or service: vehicle washing
- Environmental aspect: water use, wastewater generation
- Environmental impact: water resource depletion, degraded water quality

Impact significance score determination:

- Frequency of impact: 5 (occurs daily)
- Severity of environmental impact: 1 (insignificant)
- Severity of mission impact: 0 (no restrictions)
- Regulatory status: 3 (in compliance, well controlled)
- Community concern: 0 (community is not concerned)

Applying these ratings to the equation yields the following result:

$$SS = frequency \times (environmental\ impact\ severity + mission\ impact\ severity) + regulatory\ status + community\ concern.$$

$$SS = 5 \times (1 + 0) + 3 + 0 = 8$$

As in all previous steps, you should record the results of significance scoring. To view the example aspects and impacts worksheet presented earlier with a few sample entries, click here (the spreadsheet calculates the significance score automatically on the basis of the values you input). Ignore the far right column on the worksheet until you get to the end of this step.

Determining Significant Impacts: Once you determine the significance score for each impact, you must then decide which impacts are in fact significant. The only required criterion for determining significance is regulatory impact. If an impact is regulated by state or federal laws, the impact (and the associated aspect) is considered significant. In addition to determining significance by regulatory status, you should rank all impacts by significance score and sort them from high to low. This ranking helps identify impacts and aspects that are not regulated but still significant, and helps establish priority among the significant regulated impacts and aspects. Outside of the regulatory status requirement, you have considerable flexibility in determining what impacts and aspects are significant. You could draw a numerical cut line (such as *SS* = 12) where all impacts having a significance score at or above the cut line would be significant. Using this approach, both the first and second scenarios (paint job and solvent spills) would result in significant impact designations (hazardous waste disposal and soil or water contamination). Tracking this back to the associated environmental aspects would then result in air emissions and spills becoming significant aspects.

Another possible approach would be to look at the individual ratings that you applied to each rating factor. For example, you might decide that any actual or

potential impact receiving one or more ratings as follows would be considered significant regardless of its overall significance score:

- Environmental impact severity rating of 3 or higher
- Mission impact rating of 3 or higher
- Regulatory status rating of 3 or higher (anything regulated is significant)
- Community concern impact rating of 3 or 4.

Applying this approach makes only scenario #2 impacts significant. ***The scoring system is a useful tool in this process, but you are not obligated to use the numerical scores as your sole criteria for determining significance. Use good judgment, and tailor the system to your needs.***

Determining Significant Aspects: As stated earlier, significant aspects are simply those that you determine to have significant impacts. All you have to do at this point is to apply your chosen approach to each impact and then document the results in the far right column of the aspects and impacts worksheet by indicating yes or no.

Looking across the entire element at all mission and functional areas, activities, products, and services, you undoubtedly can identify a large number of environmental aspects and impacts. However, many environmental aspects and impacts repeat themselves. Once you compile a listing of unique aspects and impacts, you will find that the total number is much more manageable.

Review and Update of Significant Aspects: The installation must have a process to systematically identify changes in activities, products and services that might drive changes to the installation's significant aspects. Review all functional areas and processes at least annually to identify any changes. Be sure to ask functional area experts to identify any new processes or activities, products or functions that have not been subjected to an aspect and impact analysis.

Step 20. Develop or revise installation environmental management programs.

Environmental Management Programs, ISO 14001, Section 4.3.4

Objective: Determine which environmental management programs (EMPs) are needed and establish the framework for those programs.

Definition: The ISO 14001 definition of "program" differs from the USACE's definition. In ISO 14001, the term "environmental management programs" refers to efforts smaller than USACE program-level efforts. An EMP is a plan for addressing and managing significant aspects and associated objectives and targets. In this guide, we use the ISO terminology and meaning for EMPs. The USACE recommends aligning EMPs with significant aspects, which meets the

ISO 14001 requirement for establishing and maintaining EMPs to manage each objective and target.

Required Content: The EMP is a convenient way to organize activities and information within your EMS. You are likely to have several EMPs—one for each significant aspect identified in Step 19. Each EMP should include the following:

- **Objectives and targets.** How can we improve specific elements of environmental performance, and how can success be documented?
- **Regulatory and other requirements (if applicable).** What environmental regulations, guidelines, or other agreements apply to the significant aspect?
- **Responsibilities.** What actions are required to manage the significant aspect or achieve objectives and targets, and who is responsible? How is the EMP kept up to date? When appropriate, personnel (or positions) should be designated at each relevant function and level.
- **Operational controls.** What operational controls or SOPs are relevant in controlling the significant aspect? Where can these be found?
- **Training.** What training is required by ISO 14001, by environmental or other regulations, or to improve performance and reach specified targets?
- **Resources.** What human, technological, or financial allocations are needed? Include specific funding amounts and sources (refer to the hotlink in Chapter 1 for current, detailed information about funding sources).
- **Action Plans, Milestones, and Timelines.** How will the target be achieved? Are there milestones and timelines to mark your progress? When are periodic reviews scheduled?
- **Measuring and monitoring.** What must be measured or checked to ensure EMP effectiveness, progress toward objectives and targets, or effective monitoring of significant aspects? How can you be sure the measurements are accurate?
- **EMS performance records.** What progress are we making toward achieving objectives and targets? Are required actions being performed?

In addition to EMPs for each significant aspect, you might also consider developing EMPs for emergency preparedness and response procedures or other issues not covered under significant aspects.

Coordination and Oversight: The EMSMR should coordinate and oversee the EMPs. In many cases, Army installations are engaged in strategic planning efforts and have implemented systems to track installation-level goals and objectives. If this is the case on your installation, make sure that the EMS objectives and EMPs are included in the strategic planning effort and the EMSMR is involved.

Updating: Creating good EMPs is a challenge and may take several iterations to perfect. As you develop and use your EMPs, you will acquire new insights on your significant aspects and associated processes and probably see the need to make changes. This is why EMSs are built around the concept of continual

improvement. You need to modify your EMPs and related planning documents when

- activities, products, services, and related objectives and targets change;
- objectives and targets are added;
- relevant legal requirements are introduced or changed;
- substantial progress in achieving your objectives and targets has been made (or has not been made); and
- services, process, or facilities change or other issues arise.
-

Documentation and Records: Although the ISO 14001 standard only requires you to establish and maintain the EMPs, we recommend you develop and maintain documentation pertaining to your EMPs in accordance with your installation's EMS document control procedures. Records of EMP status and progress should also be maintained, including summary sheets, meeting minutes, status reports, in-process review (IPR) input, and other progress indicators. Keep it simple. You may find it useful to establish a standard form that summarizes the basic information for each EMP and its current completion status. Click here to view sample forms for summarizing EMPs.

In Step 19, you identified your significant environmental aspects. In Step 20, you determined your requirements for environmental management programs (from significant aspects) and developed a framework for EMP content. Next, Steps 21–26 provide guidance for developing the essential contents of your EMPs.

Step 21. Establish environmental objectives and targets.

Objectives and Targets, ISO 14001, Section 4.3.3

Objective: The objective of this step is to develop, maintain, and document objectives and targets for the EMPs established in Step 20. As stated in the introduction to the environmental aspects and impacts development steps, your significant aspects provide the basis for establishing objectives and targets, identifying training requirements, determining requirements for operational controls and work procedures (such as SOPs), performing general risk assessments, and completing periodic management reviews. In this step, you focus on establishing environmental objectives and targets.

Definition: ISO 14001 defines an environmental objective as "an overall environmental goal, arising from the environmental policy, that an organization sets itself to achieve, and which is quantified where practicable." In other words, environmental objectives are goals the element sets for itself, usually over the long term, at each relevant functional and organizational level. For example, an element that identifies hazardous waste generation as one of its significant

aspects might establish a quantifiable (measurable) reduction in hazardous waste generation as one of its long-term objectives.
Similarly, ISO 14001 defines an environmental target as "a detailed performance requirement, quantified where practicable, applicable to the organization or parts thereof, that arises from the environmental objectives and that needs to be set and met in order to achieve those objectives." Like objectives, environmental targets should be specific and measurable, but they should also directly link to a specific time frame for accomplishment. Continuing with the example above, an element might require a particular office or activity to reduce hazardous waste generation by a specific amount (such as 10 percent or 100 pounds) by a specific time (such as by 1 January 2004, or the end of FY04).
Generally, you want to establish at least one environmental target for each environmental objective. In addition, your objectives and targets must support mission accomplishment, be consistent with the district environmental policy, and include a commitment to pollution prevention.

Determining Objectives: When determining environmental objectives, the element should consider the following:

- Mission priorities (Step 9)
- Applicable legal and other requirements (Step 15)
- Identified significant environmental aspects and impacts, including known obstacles to effective mission accomplishment
- Element sustainability (25-year) goals, if applicable
- Ability to control the activities, products, or services involved
- Ability to track, monitor, and measure results
- Overall cost to track, monitor, and measure results
- Technological options that are or will be available (such as use of reclaimed materials in designs, alternative fuels, less hazardous solvents, etc.)
- Financial, operational, and functional requirements
- Views of interested parties
- Linkage to the environmental policy statement.

As a principal consideration, your objectives and targets (at the floor level) should facilitate mission accomplishment and help ensure continuous compliance with all applicable legal and other requirements. As a ceiling, however, elements can seek to go beyond compliance to ensure long-term sustainability and establish objectives and targets that help them achieve that end.

Establishing Objectives and Targets: To establish objectives and targets, you must first determine the level or levels to which they apply (for example, the entire installation, certain units or organizations, or individual functional areas) and who is responsible for establishing them. A typical installation-level scenario is to have the CFT that completed the aspects and impacts analysis recommend objectives and targets, which the CDR or a designated representative (such as the EMSMR) then reviews and approves.

Another scenario has the CFT developing environmental objectives for the installation, and designated subordinate leaders (such as appropriate civilian functional managers and tactical unit commanders) establishing environmental targets to ensure the objectives are accomplished. Many alternative scenarios are possible, so each installation should decide how to proceed at this point. No "standard" environmental objectives and targets pertain to every installation. Your objectives and targets should reflect what your installation does, how well it is performing, and what you want to achieve. Your objectives and targets must be readily understandable, measurable, and, above all, realistic (achievable). Generally, you should undertake the following activities as you develop objectives and targets:

1. **Involve the CFT.** Quality input from the CFT expedites the element's efforts to set realistic objectives and targets. Just as the team provided knowledge and insight during aspects and impacts analysis, it can quickly identify realistic and readily measurable objectives and targets consistent with command policy and guidance, mission-related legal requirements, available resources, and environmental aspects and impacts.

2. **Gather information from available sources.** A great deal of information should be readily available to the CFT from a number of sources. Table 2-10 shows some sources. In addition, you can take a physical walkthrough of facilities (such as heating plants, motor pools, maintenance shops, vehicle parking areas, etc.) to identify other potential information sources.

Table 2-10. Information Sources

Information source	Possible benefit
Identified environmental aspects	Identify and target significant impacts
Process maps	Identify process steps with environmental aspects
Waste and emission data	Determine current wastes and sources
Site maps	Identify environmentally sensitive areas
ERGO audit reports	Identify areas needing improvement
OMBIL Environmental Data Input	Evaluate environmental performance history

3. **Identify preliminary environmental objectives.** From the aspects and impacts of Steps 16–19, mission support requirements, and your assessment of other available information, compile a list of preliminary environmental objectives. It may be helpful to group them by category as illustrated (Table 2-11). You can prioritize your objectives, starting with those that relate directly to your significant environmental aspects and mission critical tasks, and then adding others that are less significant but still have mission or environmental impact potential.

Table 2-11. Preliminary Environmental Objectives Examples

Energy use	Raw materials	Air impacts	Water impacts	Land impacts	Mission impacts	Other (specify)
Increase alternative fuel vehicle use	Increase vehicle battery recycling	Reduce VOC emissions	Reduce petroleum spills	Reduce hazardous waste disposal from vehicle maintenance facilities	Reduce operational noise levels	Improve employee awareness
Decrease facility energy use	Increase use of recycled paper	Reduce visible emissions from painting projects	Eliminate effluent from vehicle washing facilities	Reduce landfilling of solid waste	Address endangered species impact from operations	

A key question at this point is how many environmental objectives you should have. Historical EMS implementation project case studies suggest starting with a limited number of objectives, and then expanding the list over time. In other words, keep your objectives simple initially, gain some early successes, and then build on them. As a realistic starting point, consider limiting your initial list of major objectives to 12 to 15, fewer if possible.

4. **Identify new or proposed regulatory requirements.** Identify new or proposed requirements that affect (or could potentially affect) the element's operations or activities. Also, identify potential objectives related to each requirement, as illustrated in Table 2-12.

Table 2-12. Regulatory Requirements and Objectives

New or proposed regulation or other requirement	Possible objectives
New CAA national ambient air quality standard (NAAQS) ozone standard New CAA NAAQS $PM_{2.5}$ standard	Reduce petroleum fuel consumption in administrative vehicle fleet. Reduce off-road vehicle travel. Reduce particulate emissions from coal-and oil-fired boilers.

5. **Identify, review, and evaluate element communications with interested parties.** Consider the need for additional environmental objectives related to views of element neighbors, community groups, or other interested parties. By definition, an interested party is "an individual or group concerned with or affected by the environmental performance of the organization." You can hold an open house or establish an installation focus group that includes local community representatives. Table 2-13

provides an example of how a local concern might translate into an installation environmental objective.

Table 2-13. Installation Communications

Communication with interested party	Response	Possible objectives
Telephone discussion with Jim Evans, president of Old Bridge Estates subdivision HOA (3/15/03, 703-590-5002). Concerned with element's painting operation and visible emissions potentially harming local residents.	Discussed element policy regarding painting operations and requirements for controlling and monitoring emissions. Advised that we would establish objectives to reduce emissions and volunteered to attend next HOA meeting.	Reduce visible emissions from painting operations. Improve community outreach by establishing a community advisory panel.

6. **Identify appropriate targets for achieving each objective.** Environmental targets are detailed performance requirements, quantified where practicable, that arise from the environmental objectives and that the installation must meet in order to achieve the objectives. Table 2-14 provides a few examples.

Table 2-14. Target Objectives

Objective	Target
Reduce solid waste disposal	Divert 40% of solid waste from landfilling
Reduce hazardous waste (HW) disposal	Reduce HW disposal by 20% from FY02
Reduce visible emissions from painting operation	Reduce visible emissions 60% by 1QFY03
Reduce energy consumption	Reduce electricity use by 10% from FY02
Improve employee environmental awareness	Conduct awareness training for all employees by the end of FY03

For each environmental objective, you should identify at least one target (some objectives may have more than one). In addition to being measurable, they should have a specific time frame for completion. Targets should be achievable, but difficult. The idea is to motivate the organization to *improve* environmental performance.

7. **Evaluate preliminary objectives and targets.** Carefully evaluate your preliminary objectives and targets to determine whether they are reasonable, technologically feasible, measurable, consistent with the environmental policy, and affordable. From your evaluation, compile a final list of objectives and targets (if you identify an objective but cannot determine an effective way to measure it, put it on hold for further analysis).

8. **Establish performance measures for final objectives and targets.** As stated earlier, you should quantify environmental objectives and targets

when practicable. The units commonly used to quantify objectives and targets are environmental performance indicators (EPIs). An EPI is "an expression that is used to provide information about environmental performance or the condition of the environment." Examples of EPIs include the following:

- quantity of raw material or energy used (total or per unit of production)
- Quantity of specific pollutant emissions (for example, nitrogen oxides (NO_x), sulfur oxides (SO_x), wastewater)
- Quantity of waste generated or disposed (total or per unit of production)
- Efficiency of material and energy use
- Number of environmental incidents and accidents
- Number of enforcement actions received
- Number and amount of environmental fines or penalties assessed and paid
- Percentage of waste recycled or reused
- Percentage of recycled material used in packaging
- Investment in environmental protection
- Land area set aside for wildlife habitat.

Continuing with previous illustrations, Table 2-15 shows a few examples. When developing your EPIs, be careful to choose those that reflect the most accurate picture of what is happening on the ground. For example, suppose that an industrial facility produces 500 main battle tanks each month and decides to set an objective to reduce hazardous waste disposal by a certain quantity (tons or percentage) by a certain point in time compared with a specific baseline. progress toward achieving the desired goal.

Table 2-15. Performance Measures for Final Objectives

Objective	Target	Performance indicator
Reduce solid waste disposal	Recycle 50% of solid waste in FY03 Divert 40% of solid waste in FY03	Tons or % of solid waste recycled Tons or % of solid waste diverted
Reduce VOC emissions	Reduce use of high-VOC paints by 25% in FY03	Gallons or % reduction in high-VOC paint used
Reduce energy consumption	Reduce use of electricity by 10% in FY03	kWh or % reduction in use
Eliminate enforcement actions (ENFs)	No more than two ENFs per FY	Number of ENFs received
Improve employee environmental awareness	Conduct monthly awareness courses Train all employees by end of FY03	Monthly training is conducted Number or % of employees who receive environmental training

The element then makes several process changes and decides to use less hazardous substances during production to achieve its objective. If, however, the facility has to substantially increase production (to say 750 units) to meet an emergency mission related requirement, actual

hazardous waste disposal might increase in spite of the process changes. In this case, it probably would have been better to choose an EPI that measured the tons or percentage reduction per unit of production to more accurately measure actual hazardous waste disposal.

After developing your final list, you should formally document all your objectives, targets, and EPIs. To view a sample objectives and targets worksheet that you can use for this purpose, click here.

9. **Identify responsible parties and ensure inclusion in appropriate EMPs.** For each objective and associated targets, designate CFT members (or other technically competent individuals) to be responsible for achieving them. Normally, this will be managed as part of an environmental management program that prescribes who, what, when, where, why, and how the specific objectives will be achieved (see Step 20 for detailed guidance for preparing environmental management programs).

10. **Document your procedure for developing environmental objectives and targets.** In addition to keeping records of your objectives and targets, you should formally document the specific procedure you used to develop them. You should then use the same procedure to complete periodic updates and revise the procedure as needed to ensure continual improvement.

Step 22. Describe structure and responsibilities.

Structure and Responsibility, ISO 14001, Section 4.4.1

Objective: Confirm and document the organization and structure of EMPs that constitute the element EMS and the associated individual and organizational responsibilities for implementing and operating the EMS.

Most elements already have the organization, staffing, programs, and resources to conform to the ISO requirements for structure and responsibility. This step develops or provides documentation that describes the existing organization and how it implements and operates the EMPs and the EMS.

Appointing a Management Representative: ISO 14001 requires top management to appoint a specific management representative who, regardless of other responsibilities, has the responsibility and authority for:

- ensuring that EMS requirements are established, implemented, and maintained in accordance with the ISO 14001 standard, and
- reporting on the performance of the EMS to top management for review and as a basis for improvement of the EMS.

We recommended selecting the EMSMR in Step 1.

Organizational Chart: You probably already have one, and it is a very convenient tool for documenting and explaining your organizational structure and responsibilities. Include a *current* organizational chart with your EMS documentation for roles and responsibilities

EMS Organizational Responsibilities Table: A table or matrix is a simple and effective way to summarize EMS responsibilities. The table should list the EMSMR, CFT members, and individuals responsible for the EMPs. You can then refer the reader to the individual EMPs for further information. ISO 14001 does not require a table or form, but it is probably the simplest way to summarize and document EMS-related responsibilities. Include a reference or direction to the responsibilities table in your EMS manual.

Review and Update: Your document control procedure (Step 13) should describe how information on structure and responsibilities is periodically reviewed and updated.

Step 23. Develop SOPs and work practices for activities associated with significant aspects.

Operational Control, ISO 14001, Section 4.4.6

Objective: Systematically develop, revise, and document the SOPs associated with all activities, products, and services that have environmental impacts and associated aspects to describe the appropriate actions for managing those impacts and aspects. Elements should already have SOPs or work practice instructions (called operational controls in the ISO 14001 standard) for most complex operations or mission activities, including those with associated significant environmental aspects. This step ensures that SOPs are in place and that they contain instructions that enable personnel to comply with the environmental policy and achieve environmental objectives and targets. This information should also be consistent with information presented in competency-based training (Step 24).

Where to Start: Begin this step by reviewing your prioritized list of significant aspects and impacts. Start with the operations or mission activities at the top of that list (most significant impacts), and identify any SOPs that address those activities. Make sure the SOPs adequately address all the skills and procedures needed to perform the activity in an environmentally acceptable manner. If part

of the process is not documented, either create a new SOP or modify the existing one.

What to Include: Remember that one of the central ideas of the EMS concept is to integrate sound environmental management practices in day-to-day operations. Here, you can affect how employees perform their routine daily tasks. For example, if the goal is to recycle certain used materials, make recycling a part of the relevant SOPs. The result should be SOPs that get the job done *and* mitigate environmental impacts.

Scheduling Work: You may find it useful to develop a schedule for reviewing and revising SOPs from your prioritized list of significant aspects. Some installations have found it effective to coordinate the execution of Steps 23 and 24 so that SOPs are reviewed and updated immediately before or after competency-based training is conducted. After all significant impacts and associated aspects are addressed in SOPs, you should continue by routinely reviewing all SOPs for environmental considerations as they are revised or updated. You can do so by modifying the element's staffing procedures to include appropriate environmental review and approval. Operational controls and SOPs and work practice instructions should:

- be easy to understand and use,
- list personnel who should receive or have access to them, and
- identify the training needed for the appropriate personnel.[28]

Your document control procedure (Step 13) should include requirements and responsibilities for developing, maintaining, and reviewing operational controls, SOPs, and work practices.

Step 24. Identify and fulfill environmental competency-based training requirements for all installation personnel (garrison and tenants).

Training, Awareness and Competency, ISO 14001, Section 4.4.2

The *awareness* portion of this requirement was addressed in Step 11. Step 24 deals with the competency-based training. While all installation personnel are required to complete EMS awareness training, competency-based environmental training is required only for those whose work activities can significantly impact the environment.

Objective: Establish and maintain a system or process to ensure job-specific competency for all employees whose work activities can cause real or potential significant environmental impacts.

[28] Concurrent Technologies Corporation for U. S. Army, Environmental Management System Guidance Manual: *Implementing ISO 14001*, p. 45.

Who Must Be Trained: The first step in meeting this requirement is identifying employees who need competency-based environmental training. Most elements already have a training office and a centralized system for managing individual training requirements. Try to work within your existing system. Your district training coordinator can help complete this requirement. After looking at the existing training management process, review the list of significant environmental aspects and impacts (Step19). Employees performing work or mission activities associated with these significant impacts need competency-based training. When reviewing significant impacts, look at the *entire* work process to identify *all* employees who need the training. It may also help to look at the various regulatory requirements that mandate special environmental training and include personnel working in those areas (Step 15). Be sure to include contract and temporary workers when assessing training needs.

What Must Be Trained: Competency-based training requirements must be relevant to specific work activities or job descriptions. The level of training required may also vary according the level of responsibility assigned to various grade levels or military ranks. At a minimum, the competency-based training must include the following:

- The significant environmental impacts, actual or potential, of their work activities and the environmental benefits of improved personal performance
- Specific objectives and targets related to their work activities
- The potential consequences of departure from specified operating procedures (Step 23)
- Environmental training required by applicable regulatory requirements
- Training necessary to obtain or retain required licenses or registrations
- Environmental benefits of improved personal performance.[29]

Organizing Competency-Based Training: Since competency-based training is more specialized than the awareness training, addressing competency-based requirements process by process, or mission by mission is useful. Begin by examining the activities that contribute to your most significant aspect. Look at the processes, identify the employees and job descriptions involved, and determine what they need to know to perform their missions or jobs in an environmentally responsible manner. Get input from experienced employees or supervisors as you determine training needs. They are the real experts in their particular areas and can quickly tell you what will work and what will not. It may take a while to address all significant impacts and processes, so develop a schedule and stick to it.

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[29] Concurrent Technologies Corporation for U. S. Army, Environmental Management System Guidance Manual: *Implementing ISO 14001*, p. 35.

[29] Concurrent Technologies Corporation for U. S. Army, Environmental Management System Guidance Manual: *Implementing ISO 14001*, p. 35.

Options for Providing the Training: Competency-based training does not always have to take place in a classroom. On-the-job training, brownbag sessions, and computer-based training are good alternatives.

Training Records: You must keep records of the training performed in order to conform to the ISO 14001 standard. Training records must include the following:

- Individuals and job descriptions requiring training
- Information or skills taught (lesson outline or plan)
- Requirements for completion (written test, hands-on exercise, etc.)
- Schedule or timetable
- Attendance records (include a sign-in sheet)
- Results of evaluation (pass or fail, go/no go).

ISO 14001 does not require documentation of training procedures, but we recommend you develop training documentation that includes:

- the process the element uses to determine training needs,
- the location of the training plans and who is responsible for them, and
- how training is prioritized at the element.

Your training program is an ongoing function on the installation. You must continually assess and update installation-specific training needs. Keep procedures and records in accordance with your installation's document control and record-keeping procedures.

Obtaining Training Materials: Because of the specialized nature of competency-based training, you may have to obtain information from a variety of sources or develop lessons "in house" to meet your needs. However, USACE elements share many similar functions, and good training materials will become readily available as more elements implement their EMS. Before developing training materials in house, check the sources that follow to see whether existing materials can meet your needs:

- Training posted on DENIX
- Other elements with similar missions
- Training workshops
- Training videos
- Internal trainers
- Experts
- Consultants
- Community colleges
- Vendors and suppliers
- Technical, trade, and business associations
- Self-study or study groups

Step 25: Establish monitoring and measurement procedures.

Monitoring and Measurement, ISO 14001, Section 4.5.1

Key characteristics are the environmental performance indicators established for each target set in Step 21.
Performance indicators should be simple and understandable, objective, measurable, verifiable, reproducible, and relevant to your installation's objectives and targets. They should also be practical, cost-effective, and technologically feasible. The identification of environmental performance indicators should be an ongoing process (ISO 14004, p. 21). Your performance indicators must provide top management with the information it needs to make decisions about the EMS (NSF-ISR, p. 62).

Objective: Establish and maintain documented procedures as required by ISO 14001, Sec 4.5.1, to

- regularly monitor and measure the key characteristics of your operations and activities that can significantly impact the environment;
- track environmental performance (including progress toward meeting objectives and targets and conformance with SOPs);
- calibrate and maintain monitoring equipment and maintain records of the calibration process; and
- periodically evaluate compliance with relevant environmental laws and legislation.

What Should Be Measured? Two major sets of activities or processes should be measured and monitored:

- Processes associated with significant aspects all require some sort of monitoring or measurement. Sophisticated techniques and automated systems are usually not required, but if a process is associated with a significant aspect, someone should be checking performance.
- The group of processes related to objectives and targets requires monitoring. These are actually a subset of the first group, and are probably a higher priority since you specifically identified these areas for improvement. You can begin by reviewing your element's list of objectives and targets and the associated and the associated performance measures (Step 21).

You must eventually define required measuring and monitoring for all significant aspects, but the first priority should relate to the objectives and targets.

Examine the performance measures (key characteristics) developed in Step 21. Do you already have an accurate and reliable way to monitor and measure these variables? At this point, check with the environmental staff and with the supervisors in charge of these processes to determine what is already being measured and monitored. Some of the monitoring you need is probably already being done. For each of the key characteristics you need to monitor, think about the following:

- Is the required monitoring already being done?
- If so, is the method
  - providing accurate data? (Performed using valid, documented procedures and calibrated equipment?)
  - reliable? (Performed successfully on a regular schedule, with data recorded and maintained according to documented procedures?)
  - performed at an appropriate frequency? (You need multiple data points to track variables and interpret performance over a time period. Recommended frequency depends on the variable being measured and the changes you need to demonstrate.)

If your current monitoring procedures do not satisfy these requirements, you should examine the procedures and equipment to determine needed improvements. Likewise, if you need to implement new monitoring programs, be sure that the procedures meet these requirements and provide the data you need to effectively evaluate performance. "Monitoring and measuring can be a resource-intensive effort."[30] Be certain to have clearly defined requirements for data collection and to avoid collecting data for "data's sake."[31] Ensure your installation has a clear, well-communicated schedule for routine monitoring and measurement and equipment calibration. In your schedule, include time for proper data management and quality control procedures.

Record, Analyze, and Understand Data: Monitoring programs are useless if you cannot correlate the measured data with performance. To do so, you must accurately record the data you are collecting and maintain it in format that illustrates any changes in performance. Involve the supervisors and employees who work in the process being measured; ensure they understand the data being collected and how it relates to both the performance measures and the objectives and targets. Often, your performance measures will accurately document performance but will not tell *why* the process is working better or worse. Understanding the variables or factors that affect performance is critical to analyzing your data and assessing your progress toward objectives and targets. A root cause analysis can be valuable. Also, supervisors and line employees

[30] NSF-ISR, *Environmental Management Systems—An Implementation Guide for Small and Medium-Sized Organizations*, p. 60.

[31] NSF-ISR, *Environmental Management Systems—An Implementation Guide for Small and Medium-Sized Organizations*, p. 60.

can often provide quick analyses of process performance and the factors affecting it. They can help you identify what to change to obtain the results you want and can often explain how underlying or uncontrolled variables are influencing performance.

Tracking Performance: The ISO 14001 standard requires you to track performance of your significant processes using performance measure data and evaluate your progress toward objectives and targets. This periodic evaluation ensures that you are consistently moving toward the established objectives. If the process is not meeting the established objectives and targets, you must determine why and make changes to improve performance. For some processes, you can establish operating parameters that apply to your performance measures. Performance data that fall outside of your established operating parameters indicate subpar performance and should trigger evaluation of and adjustments to the process. Maintain performance records in accordance with your EMS records procedure. Also, remember to look at SOPs and make sure they accurately describe appropriate ways to perform duties and operate the process. After verifying that the SOP is correct, ensure that employees are following it.

Calibration Requirements: Some measurements involve equipment such as scales, meters, and other measurement devices. Proper and accurate functioning of these items is critical to your success. Review the manufacturer's recommendations and document a calibration and testing procedure. Maintain the procedures, required calibration and testing schedules, and calibration and testing records in accordance with your document control and records maintenance procedures.

Evaluate Compliance with Environmental Laws and Regulations: In addition to meeting your objectives and targets, you need to periodically check your regulatory compliance status. From Step 15, you know the regulations and laws that apply to your element and its activities. To meet the ISO 14001 requirement, you must document the procedures you use to periodically check compliance. USACE elements have been doing this for many years, and you probably already have these procedures in place (such as ERGOs, internal and external assessments, etc). In most cases, your main task will be to check the documentation and records for these processes and maintain the information in accordance with your established procedures. Typical processes for ensuring compliance include periodic inspections, as well daily, weekly, or monthly monitoring of critical process (wastewater treatment monitoring to satisfy the national pollutant discharge elimination system (NPDES) permits, for example). Also, internal and external audits performed as part of the ERGO program can provide periodic snapshots of regulatory compliance.

Click here for example measuring and monitoring procedures.

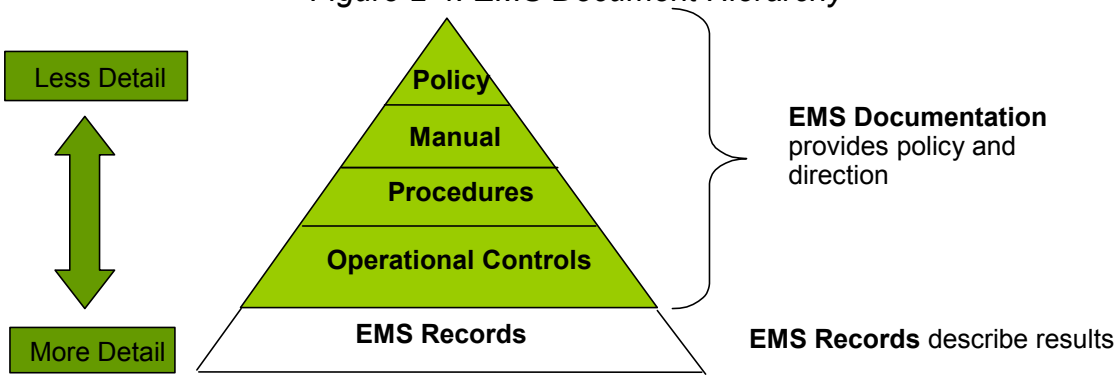
Step 26. Establish procedures for maintaining EMS records.

Records, ISO 14001, Section 4.5.3

Objective: Develop and implement procedures for managing records that document EMS operation and performance.

Definition: ISO 14001 requires organizations (such as installations and other appropriate facilities) to "establish and maintain procedures for the identification, maintenance and disposition of environmental records. These records shall include training records and the results of audits and reviews."[32] The records are the information that must be maintained to document the performance of the EMS and to demonstrate conformance with the ISO 14001 standard (Figure 2-4). Keeping complete and well organized environmental records is critical, not only because of the ISO requirement, but also because the records help you track environmental performance and improve the EMS.

Figure 2-4. EMS Document Hierarchy



You can organize your records in a variety of ways, such as according to EMPs. Some types of records, like audit reports, include information covering multiple EMPs and might be stored in their own specific files. Using an electronic database with search capabilities greatly increases the flexibility of your record-keeping system and will resolve most file location issues.

EMS Records must be:

- legible;

[32] ISO 14001, Section 4.5.3, p.5.
[32] ISO 14001, Section 4.5.3, p.5.

- identifiable and traceable to the activity, product, or service involved;
- stored and maintained to be readily retrievable and protected against damage, deterioration, or loss; and
- kept in accordance with established and recorded retention times.

Make sure your records policy answers the following questions:

- What records are kept?
- Who keeps them?
- Where are they kept?
- How are they kept?
- How long are they kept?
- How are they accessed?
- How are they disposed of?
- In addition to training records and audit results, records may also include the following:
- Legislative and regulatory requirements
- Compliance records
- Job descriptions
- Permits, licenses, and other approvals
- Environmental aspects and their associated impacts
- Environmental training records
- Equipment inspection, calibration, and maintenance activity and records
- Sampling and monitoring data
- Information on emergency preparedness and response
- Details of nonconformance, incidents, complaints, external communications, and follow-up action
- Supplier and contractor information[33]
- Results of EMS audits and management reviews.

"The effective management of these records is essential to the successful implementation of the EMS."[34]

[33] Concurrent Technologies Corporation for U. S. Army, Environmental Management System Guidance Manual: *Implementing ISO 14001*, p. 50.

[34] ISO 14004, Section 4.4.4, p. 22.

Hints for Records

- Begin by identifying the records required. Look at your procedures and SOPs to determine the evidence needed to demonstrate conformance. Also, consider records that must be generated due to various legal requirements.
- Focus on records that add value.
- If you generated forms in order to implement the EMS, the forms, once filled out, become records. Keep forms simple and understandable.
- Establish a records retention policy and stick to it. Include records retention requirements specified in applicable environmental regulations.
- When formulating your records management process, consider the people who need access to the records and the circumstances.
- Consider using an electronic EMS records management system.
- Think about which records need additional security or restricted access. Consider a remote backup of critical records at another location.

Step 27. Develop and review emergency preparedness and response documents and procedures.

Emergency Preparedness and Response, ISO 14001, Section 4.4.7

Objective: Establish and maintain procedures as required by ISO 14001 to:

- Identify potential for accidents and emergency situations.
- Respond to accidents and emergency situations.
- Prevent and mitigate the environmental impacts that may be associated with accidents and emergencies.
- Review and revise emergency preparedness and response procedures where necessary, especially after the occurrence of an accident or emergency.
- Conduct drills and tests of emergency preparedness and response procedures

You should also consider emergency situations resulting from terrorist or other intentional acts that might impact the environment when developing and reviewing emergency preparedness and response documents and procedures.

Key Team Members: Emergency preparedness and response normally involve multiple organizations on and off the element. All participants must work together to develop detailed plans and execute quick, coordinated responses. The CDR is ultimately responsible for these operations but, in most cases, relies on the staff to coordinate and execute the technical aspects of the response. Other key organizations include the following:

- Safety Office
- Public Affairs Office
- Off-post responders (local hospitals, fire departments, and hazardous materials (HAZMAT) units)
- Counter-terrorism officials (if applicable).

Determine Emergency Plans and Procedures: First, determine the plans and procedures required by laws and regulations. Depending upon the nature of their missions and operations, USACE elements are often required by law to maintain the following:

- Risk management plan (a CAA Section 112r requirement for installations that stock certain chemicals above threshold quantities)
- Spill contingency plan (SCP) and spill prevention, control, and countermeasures plan (SPCCP) to address potential oil spills
- RCRA contingency plan
- Facility response plan (FRP)
- Chemical accident/incident response and assistance (CAIRA) plan.

In addition, your state may require specific plans covering certain contingencies. Check your state's requirements during this process. To complete your list of required response plans, look at other areas or operations at your element that have the potential for environmental accidents or releases not covered by laws and regulations. One way is to look at the hazardous or regulated materials used at the element. In most cases, they will be addressed under the laws and regulations discussed earlier and will be included in an existing plan. If not, you should make sure they are included.

Review and Update Your Response Plans: Your document control procedures (Step 13) must include requirements and responsibilities for reviewing and updating emergency response plans at least annually. Key team members should participate in the review, and the results should be recorded as part of the review process. The major purpose of the review is to identify changes at the element that affect plan execution. Be sure to review attachments to the plans, such as contact names and phone numbers, maps, facility floor plans, and material safety data sheets (MSDSs). These details often change and can seriously compromise the plan. As you review the plans, ensure that they meet the ISO 14001 requirements listed at the beginning of this step.

Posting and Distributing Plans: Make sure that employees can easily access plans and that they understand what they are expected to do in case of an emergency. Maintaining the plans on your intranet helps document control issues, but you may also want to post hard copies of the plans in affected organizations and work areas to ensure easy access. Observe document control procedures and remove outdated versions of the plans from the involved organizations and work areas. Include off-post responder organizations.

Training and Exercises: Competency-based training (Step 24) must cover the emergency preparedness or response plans. When feasible, you should conduct no-notice drills or exercises to test the ability of employees and responders to react quickly and correctly in case of emergencies. When you conduct an exercise (or after an actual emergency), hold an after-action review (AAR), keep records of the results, and revise the affected plans as required.

Documentation: Maintain the following documentation in accordance with your EMS document control procedures:

- A procedure for identifying the potential for environmental accidents and emergencies (risk assessment)
- All element environmental accident and emergency response plans and procedures
- Documentation on how the element works to prevent such incidents and the associated environmental impacts (provide the location of procedures for fire, safety, HAZMAT storage, and hazardous waste accumulation point inspections)
- Mitigation procedures for impacts associated with accident and emergencies (covered in your response plans)
- Emergency preparedness and response document review and testing processes.

Step 28. Establish procedures for nonconformance and preventive and corrective actions

Nonconformance, corrective and preventive action, ISO 14001, Sec. 4.5.2

At this point, you have taken great strides in establishing and implementing the EMS, but your EMS is not perfect. To deal with imperfections—some of which may have been identified from measuring, monitoring, audits, and other reviews—and to adapt to changes on the installation, you must develop procedures for dealing with nonconformance.

Objective: Develop and implement procedures that meet the ISO 14001 requirements for:

- defining responsibility and authority for handling and investigating nonconformance,
- taking action to mitigate any resulting impacts,
- initiating and completing preventive and corrective actions, and
- implementing changes to EMS procedures as a result of preventive or corrective actions.

Definition: Nonconformance refers to situations or actions that do not meet or comply with the requirements established in the your element's EMS or the ISO

14001 standard. Nonconformance can also mean that implementation is not consistent with the EMS description. [35]

Means of identifying potential or real nonconformance include:

- findings, conclusions, and recommendations reached as a result of measuring and monitoring;
- audits and other reviews;
- accidents;
- employee comments; and
- changes in installation activities or structure.

Responsibilities and Authorities: Your nonconformance procedures must establish the nonconformance responsibilities and authorities for the various organizations and individuals involved in the EMS. Organize this information with a table or separate paragraphs covering each position or organization. Whatever the format, everyone on the installation, from the CDR and supervisors to individual employees, must understand what they can and must do to address nonconforming situations.

Processes: Your procedures must include instructions for completing several standard actions designed to identify and respond to nonconformances:

- **Identifying and Reporting.** Guidance for individuals who identify a potential nonconformance, including to whom one reports and how to document the report.

- **Investigation and Analysis.** Guidance for determining who has the authority and responsibility to investigate nonconformance, the steps to be included in the process, documentation of the results, and who receives the results of the investigation.

- **Mitigation of Impacts.** For nonconformance that impacts the environment, guidance on who is responsible for mitigation and who approves and provides oversight on the mitigation activities.

- **Corrective and Preventive Actions.** Guidance for preventing the nonconformance from occurring again, including the individuals or groups responsible for formulating the preventive actions and ensuring that the preventive actions are implemented and incorporated in existing EMS documentation.

General Principles: In any nonconformance situation, the parties responsible for addressing the nonconformance must perform several key activities to

[35] NSF-ISR, *Environmental Management Systems—An Implementation Guide for Small and Medium*

-Sized Organizations, p. 65.

correctly assess and respond to the problem. Ensure that your nonconformance procedures include the following:

- Determine the root cause.
- Develop the appropriate corrective or preventive action.
- Document the corrective or preventive action. (The amount of planning and documentation varies with the severity of the problem and its potential environmental impacts. Try to keep things simple:[36])
- Implement the corrective or preventive action.
- Record the documentation and implementation of the corrective or preventive action.
- Communicate the corrective or preventive action.
- Track and verify the effectiveness of corrective or preventive actions.

By analyzing system deficiencies, attempting to determine the root cause, or identifying why the problems are actually occurring, you may be able to detect patterns or trends. "Identifying trends allows you to anticipate and prevent future problems. Preventing problems is generally cheaper than fixing them after they occur (or after they reoccur)."[37] When a problem is documented, the element commits to quickly resolving it. Be certain the corrective and preventive action process developed includes responsibilities and completion schedules. If the action is going to be lengthy or resource intensive you should review progress regularly.

The corrective action should resolve the immediate problem as well as consider whether the same or similar problems exist elsewhere. Furthermore, you must ensure that any corrective or preventive action taken to eliminate the causes of actual and potential non-conformances must be appropriate to the magnitude of problems and commensurate with the environmental impact encountered.[38]

Changes in the EMS documented procedures that result from any corrective or preventive action must be implemented and recorded. In addition, the element must ensure that these corrective and preventive actions have been implemented and that systematic follow-up ensures their effectiveness.[39]

If your element has an ISO 9001 management system in place, use the ISO 9001 corrective and preventive action process as a model for this EMS corrective

[36] NSF-ISR, *Environmental Management Systems—An Implementation Guide for Small and Medium-Sized Organizations*, p. 66.

[37] NSF-ISR, *Environmental Management Systems—An Implementation Guide for Small and Medium-Sized Organizations*, p. 65.

[38] ISO 14001, Section 4.5.2, p. 5.

[39] ISO 14004, Section 4.4.3, p. 22.

and preventive action procedure.[40] Consider incorporating parts of the corrective action process with the management review process. For example, use the management review meetings to review nonconformities, discuss causes and trends, and identify corrective actions and assign responsibilities.[41]
ISO 14001 requires only that organizations establish and maintain procedures for nonconformance and corrective and preventive action. We recommend that you document these procedures to ensure consistency and understanding across the installation.

Step 29. Conduct periodic EMS audits.

Environmental Management System Audits, ISO 14001, Sec

Objective: Establish and maintain programs and procedures for periodic EMS audits to do the following:

- Determine whether the EMS operates in accordance with documented procedures and the ISO 14001 standard.
- Determine whether the EMS has been properly implemented and maintained.
- Provide audit results information to management.
- Base the audit coverage on environmental importance and previous audit results.
- Include the scope, frequency, methods, responsibilities, and requirements for conducting audits, measures to ensure auditor competence, and reporting results.

Definition: ISO 14001 defines EMS audits as "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 or communication of the results of this process to management."

Who Can Conduct Audits? EMS audits can be performed by element personnel or by external parties selected by the element. If your installation is ISO 9001–conformant, consider using your internal quality auditors as your internal EMS auditors.[42] Regardless whom you choose to perform audits, they must be properly trained. Training can come from a variety of sources, including on the job, on-line or correspondence courses, or classroom auditor training. Finally, your EMS auditors must be able to audit objectively and impartially.[43] To help ensure objectivity, select auditors from outside the activity or chain of command of the activity being audited. When selecting external EMS auditors,

[40] NSF-ISR, *Environmental Management Systems—An Implementation Guide for Small and Medium-Sized Organizations*, p. 65.

[41] NSF-ISR, *Environmental Management Systems—An Implementation Guide for Small and Medium-Sized Organizations*, p. 65.

[42] NSF-ISR, *Environmental Management Systems—An Implementation Guide for Small and Medium-Sized Organizations*, p. 72.

[43] ISO 14004, Section 4.4.5, p. 22.

installations should consider using ISO 14012 “Guidelines for Environmental Auditing—Qualification Criteria for Environmental Auditors” as their selection criteria. One potential option is to pair an auditor from an external organization (for objectivity) with an auditor within the activity (for process and procedural knowledge.)

Frequency and Scope: The nature of the element’s environmental aspects and potential impacts, as well as the previous audit’s results, should guide the frequency of the audits. Each organization has considerable flexibility as to how and when it conducts internal audits. Do not wait until the EMS is fully implemented and documented before conducting the first audit. Audits can occur simultaneously with implementation.[44] You are not required to audit the entire EMS at one time. You may break the EMS into discrete elements to allow for more frequent audits.[45] In general, each part of the entire EMS should be audited at least annually, more often if warranted. Audit coverage should be prioritized using two criteria: environmental significance and prior audit results. You should audit areas with significant environmental impacts early and often. Likewise, operations or processes with a history of nonconformance (discovered by audit results, regulatory violations, or other reporting) must also be a high audit priority.

Objectives of EMS Audits: “Your EMS audits should focus on objective evidence of conformance. During an audit, auditors should resist the temptation to evaluate, for example, why a procedure was not followed–that step comes later.”[46] The EMS “audit is a check on how well your system meets your own established EMS requirements. An EMS audit is not an assessment of how well employees do their jobs.”[47] Audits, if done properly, can provide benefits beyond meeting the ISO requirement. They can identify and help correct nonconformities before any significant environmental impacts result. Audits can help you fine-tune your EMS to optimize environmental (and mission) performance.

Figure 2-5. Linkages Among EMS Audits, Corrective Action, and Management Reviews [48]

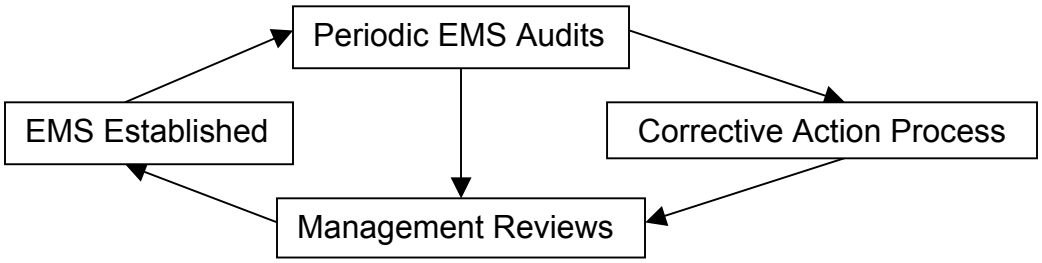
[44] Concurrent Technologies Corporation for U. S. Army, Environmental Management System Guidance Manual: *Implementing ISO 14001*, p. 51.

[45] NSF-ISR, *Environmental Management Systems—An Implementation Guide for Small and Medium-Sized Organizations*, p. 71.

[46] NSF-ISR, *Environmental Management Systems—An Implementation Guide for Small and Medium-Sized Organizations*, p. 72.

[47] NSF-ISR, *Environmental Management Systems—An Implementation Guide for Small and Medium-Sized Organizations*, p. 73.

[48] NSF-ISR, *Environmental Management Systems—An Implementation Guide for Small and Medium-Sized Organizations*, p. 73.



Results: Records of audit results must be maintained and communicated to conform with the requirements of ISO 14001. Audit results are one form of EMS performance information that must always be communicated to management. Recording audit results allows monitoring of corrective actions.[49] Because audit results are EMS records, consider creating and using a template for documenting audit results. Although not a formal requirement, it may ease compliance with your EMS's records and documentation requirements. Furthermore, installations should "ensure that identified system gaps or deficiencies are corrected in a timely fashion and that corrective actions are documented."[50]

Self-Declaration Procedures: Army EMS policy requires appropriate facilities to achieve full conformance with the ISO 14001 standard by 31 December 2009. **Third party registration to the standard is not required, but elements may follow Army procedures for *self-declaration* at their discretion.**

Step 30. Conduct periodic EMS management reviews.

Management Review, ISO 14001, Section 4.6

Objective: Establish procedures for top management to periodically review the performance of the EMS. As part of a continual improvement process, the ISO 14001 standard requires an organization's top management (EQCC or similar group) to review the EMS, at intervals that it determines, to ensure that the EMS is working (suitable, adequate, and effective, given the installation's needs).[51]

Management Reviews, Quality Management, and IPRs: The management review as described by the ISO standard is basically the same as the IPR commonly used in the Army. Consider holding management reviews at least once a year. Depending on the nature of your objectives and targets, hold IPRs

[49] Concurrent Technologies Corporation for U. S. Army, Environmental Management System Guidance Manual: *Implementing ISO 14001*, p. 51.

[50] NSF-ISR, *Environmental Management Systems—An Implementation Guide for Small and Medium-Sized Organizations*, p. 72.

[51] NSF-ISR, *Environmental Management Systems—An Implementation Guide for Small and Medium-Sized Organizations*, p. 75.

semiannually or quarterly to track progress and make adjustments in a timely manner. You can combine management review meetings with other meetings, such as strategic planning or quality review meetings, or have a standalone EMS management review meeting."[52] Management reviews are one key to continual improvement and for ensuring that the EMS will continue to meet your organization's needs over time."[53]

Management Review Objectives: The management review should serve several functions:

- Providing general information about the EMS and current environmental issues to top management (continuing awareness)
- Discussing the relevancy of the installation's environmental policy, objectives, and targets in light of changing situations and making appropriate revisions
- Discussing EMS audit results and approving related plans and resources required to improve the EMS
- Reviewing progress toward objectives and targets, approving new or revised objectives and targets.

Who Participates: Two kinds of people should be involved in the management review process:

- Those who know and are responsible for specific aspects of the EMS and related environmental issues. This group extends beyond the environmental management office and should include individuals responsible for EMPs, as well as individuals in the various functional areas where significant impacts occur.
- Those who can make decisions about the organization and its resources (top management).[54]

Scope: The review should be comprehensive, though not all elements of an EMS need to be reviewed at once and the review process may take place over time. The review of the policy, objectives, and procedures should be carried out by the level of management that defined them. Reviews should include:

- minutes from previous management reviews,
- results from audits,
- the extent to which objectives and targets have been met,
- the continuing suitability of the EMS in relation to changing conditions and information,

[52] NSF-ISR, *Environmental Management Systems—An Implementation Guide for Small and Medium-Sized Organizations*, p. 75.

[53] NSF-ISR, *Environmental Management Systems—An Implementation Guide for Small and Medium-Sized Organizations*, p. 75.

[54] NSF-ISR, *Environmental Management Systems—An Implementation Guide for Small and Medium-Sized Organizations*, p. 75.

- concerns among relevant interested parties (internal suggestions and external communications), [55]
- other environmental performance measures, and
- reports of emergencies, spills, or other incidents or nonconformities.

Evaluate the need to change the environmental policy, objectives, targets, and other elements of the EMS due to the following factors:

- Changing mission
- Addition of new facilities
- Changing legislation
- Changing expectations and requirements of interested parties
- Changes in the products or activities of the element
- Advances in science and technology
- Lessons learned from environmental incidents
- Reporting and communication.[56]

Management reviews should assess both positive and negative findings and not only focus on the negative. Ensure the review focuses on the installation's environmental performance and evaluates the EMS's effectiveness.

Documentation and Follow-up: Record the minutes of the management review and document resulting observations, conclusions, and recommendations to prepare for necessary actions. In addition, "if any corrective action must be taken, top management should follow up to ensure that the action was effectively implemented."[57] Consider maintaining a "due-out" list that documents required actions, responsible parties, and scheduled dates. Use this list to track required actions to **completion. Maintain all management review documentation in accordance with your document control procedures.**

Continual Improvement: "The purpose and final outcome of the management review should be continual improvement of the EMS."[58] The continual improvement process should:

- identify areas of opportunity for improvement of the EMS that lead to improved environmental performance,
- determine the cause or causes of nonconformance or deficiencies,
- develop and implement plans of corrective and preventive action to address root causes,
- verify the effectiveness of the corrective and preventive actions,

[55] ISO 14001, Section A.6, p. 10.

[56] ISO 14004, Section 4.5.2, p. 23.

[57] Concurrent Technologies Corporation for U. S. Army, Environmental Management System Guidance Manual: *Implementing ISO 14001*, p. 53.

[58] Concurrent Technologies Corporation for U. S. Army, Environmental Management System Guidance Manual: *Implementing ISO 14001*, p. 53.

- document changes in procedures resulting from process improvement, and
- make comparisons with objectives and targets".[59]

Management reviews offer an opportunity to keep the EMS efficient and cost-effective. If your element developed procedures or processes that are no longer needed, eliminate them.[60] "As your organization's EMS increases in its effectiveness and efficiency, your environmental performance will likewise increase."[61]

[59] ISO 14004, Section 4.5.3, p. 24.

[60] NSF-ISR, *Environmental Management Systems—An Implementation Guide for Small and Medium-Sized Organizations*, p. 75.

[61] Concurrent Technologies Corporation for U. S. Army, Environmental Management System Guidance Manual: *Implementing ISO 14001*, p. 53.

Management Review Questions to Ponder

- Did we achieve our objectives and targets? If not, why not? Should we modify our objectives?
- Is our environmental policy still relevant to what we do?
- Are roles and responsibilities still clear, do they make sense, and are they communicated effectively?
- Are we applying resources appropriately?
- Are our procedures clear and adequate? Do we need other controls? Should we eliminate some of them?
- Are we fixing problems when we find them?
- Are we monitoring our EMS (such as via system audits)? What do the results of those audits tell us?
- What effects have changes in materials, products, or services had on our EMS and its effectiveness?
- Do changes in laws or regulations require us to change some of our approaches?
- What other changes are coming in the near term? What impacts (if any) will these have on our EMS?
- What stakeholder concerns have been raised since our last review? How are concerns being addressed?
- Is there a better way? What can we do to improve?

(NSF-ISR, *Environmental Management Systems—An Implementation Guide for Small and Medium-Sized Organizations*, p. 76)

CONCLUSION

Congratulations! The basic elements of your EMS are now in place, and you can focus on continual improvement. As you continue to operate and examine the EMS and its procedures, you will undoubtedly find ways to streamline the EMS to increase both effectiveness and ease of use. You will also see that the environmental focus of the installation will shift from a defensive, reactive posture to one that is proactive and based on sound planning and informed decision-making. In order to keep the EMS relevant and effective, you must ensure that the mission remains the central focus of the management system and the EMS works to enhance readiness and develop sustainable processes and activities.

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Appendix A
Acronyms

AAR	after-action review
ABC	activity-based costing
ANSI	American National Standards Institute
AR	Army Regulation
ARNG	Army National Guard
ARTEP	Army Readiness Training Evaluation Programs
BMP	best management practice
CAA	Clean Air Act
CAIRA	Chemical accident/incident response and assistance
CBT	computer-based training
CDR	commander
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFCs	chlorofluorocarbon
CFR	Code of Federal Regulations
CFT	cross-functional team
CONUS	Continental United States
COTS	commercial off-the-shelf
CWA	Clean Water Act
DENIX	Defense Environmental Network Information Exchange
DFE	Design for the environment
DoD	Department of Defense
DPW	directorate of public works
DSERTS	Defense Site Environmental Restoration Tracking System
ECAS	Environmental Compliance Assessment System
ECOs	environmental compliance officers
EMP	environmental management programs
EMS	environmental management system
EMSMR	environmental management system management representative
ENFs	enforcement actions
EO	Executive Order
EPA	U.S. Environmental Protection Agency
EPAS	Environmental Program Assessment System
EPCRA	Emergency Planning and Community Right-To-Know Act
EPI	environmental performance indicators
EPR	Environmental Program Requirements
EQCC	environmental quality control committee
EQR	Environmental Quality Report
ESA	Endangered Species Act
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FRP	Facility response plan
FY	fiscal year
GOCO	government-owned, contractor-operated

HAZMAT	hazardous material
HMTA	Hazardous Materials Transportation Act
HOA	homeowners association
HW	hazardous waste
ICAPs	installation compliance action plans
IMA	Installation Management Agency
IMRO	installation management regional office
IPR	in-process review
ISR	Installation Status Report
IT	information technology
METL	mission-essential task list
MSDSs	material safety data sheets
NAAQS	national ambient air quality standards
NCA	Noise Control Act
NEPA	National Environmental Policy Act
NLT	no later than
NOV	notices of violation
NOx	nitrogen oxides
NPDES	national pollutant discharge elimination system
OB/OD	open burn/open detonation
OCONUS	Outside Continental United States
ODCs	ozone depleting chemicals
PAO	public affairs office
$PM_{2.5}$	particulate matter with diameter less than or equal to 2.5 microns
POC	point of contact
POL	petroleum, oil, or lubricant
POTW	publicly owned treatment works
RCRA	Resource Conservation and Recovery Act
RDT&E	Research, development, testing, and evaluation
REOs	regional environmental offices
SCP	Spill contingency plan
SDWA	Safe Drinking Water Act
SOP	standard operating procedure
SOx	sulfur oxides
SPCC	Spill Prevention, Control, and Countermeasures
SPCCP	Spill Prevention, Control, and Countermeasures Plan
SRS	Strategic Readiness System
SS	significance score
TDA	Table of Distribution and Allowances
TOE	Table of Organization and Equipment
TSCA	Toxic Substances Control Act
USACE	U.S. Army Corps of Engineers
USAEC	U.S. Army Environmental Center
USC	United States Code
VOC	volatile organic compounds