# EMS Primer
For
Federal Facilities

What is an Environmental Management System? EMS)

What is an EMS?
(Environmental Management System)

An Environmental Management System (EMS) is a framework that allows an organization to consistently address the effects that its operations or processes may have on the environment and to continually improve how its business practices interact with the environment.

An EMS is a continual cycle of planning,

- **Checking,** including monitoring and corrective action to determine success of implementation [check]; and

- **Reviewing,** including progress reviews and actions to make needed changes to the EMS and return to planning phase [act].
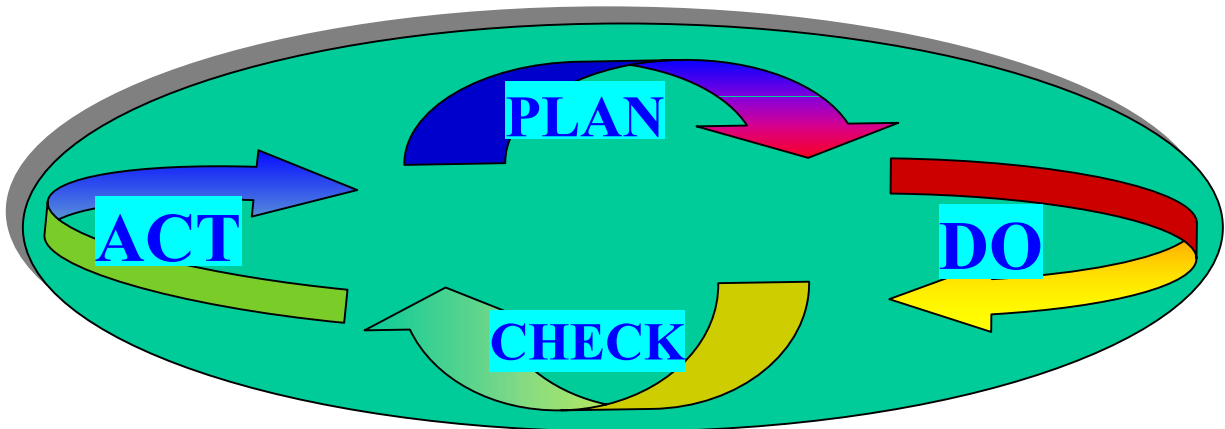
implementing, reviewing and improving the processes and actions that an organization undertakes to meet its organizational and environmental goals. Most EMSs are built on the "Plan, Do, Check, Act" model.

This model leads to continual improvement based upon:

- **Planning,** including identifying environmental aspects and impacts AND establishing goals to address those impacts [plan];

- **Implementing,** including training and operational controls to meet established goals [do];

FIRST, THE GOOD NEWS… *Your facility or organization probably already has many (if not all) of the EMS components in place … the majority of these o*ngoing and existing environmental management activities can be integrated or refocused into a formal EMS.

An EMS should be flexible and does not require organizations to necessarily "retool" their existing activities; in fact it is best to start with what you have in place. Many federal agencies have active and effective pollution prevention programs and waste minimization activities already underway. These could be incorporated into an overall EMS.

Sec. 401. Agency and Facility Environmental Management Systems.

To attain the goals of section 201 of this order:

(a) <u>**Within 18 months of the date of this order, each agency shall conduct an agency-level environmental management system self** *assessment* *[gap analysis]*</u> based on the Code of Environmental Management Principles for Federal Agencies developed by the EPA (61 Fed. Reg. 54062) and/or another appropriate environmental management system framework *[e.g., ISO 14001]*. Each assessment shall include a review of agency environmental leadership goals, objectives, and targets. Where appropriate, the assessments may be conducted at the service, bureau, or other comparable level.

(b) <u>**Within 24 months of the date of this order, each agency shall implement environmental management systems through pilot projects**</u> at selected agency facilities based on the Code of Environmental Management Principles for Federal Agencies and/or another appropriate environmental management system framework. <u>**By December 31, 2005, each agency shall implement an environmental management system at all appropriate agency facilities based on facility size, complexity, and the environmental aspects of facility operations.**</u> The facility environmental management system shall include measurable environmental goals, objectives, and targets that are reviewed and updated annually. Once established, environmental management system performance measures shall <u>**be incorporated in agency facility audit protocols.**</u>

TOP MANAGEMENT SUPPORT

The Bush Administration is working to significantly increase the federal government's use of environmental management systems as a planning and implementation tool to help Federal agencies better carry out their mission more effectively and efficiently while practicing and be better environmental stewards   EMSs will help to better equip agencies with the information, resources, strategy, and feedback they need to ensure they are continuously improving their performance and reducing their environmental impact.

On April 1, 2002, James L. Connaughton, Chairman of CEQ, and Mitchell Daniels, Director of the Office of Management and Budget (OMB), sent a letter to the heads of all federal agencies emphasizing the importance of developing environmental management systems as key tools to meeting the President's management and stewardship agendas. Federal agencies are required by Executive Order 13148 to implement EMSs by the end of 2005 at all applicable facilities.

The Office of the Federal Environmental Executive will be working closely with CEQ, OMB, the Environmental Protection Agency, the Department of Defense, and other agencies to develop resources and training for agencies to be able to adopt and implement this management tool.

DEFINITIONS

A) An **_Environmental Management System_** (EMS) is that component of any organization's (agency, service, bureau, mode, district, region, facility, unit, installation, etc) overall management systems that takes into account **_Organizational Structure, Planning, Activities, Procedures, Processes, and Resources_** for developing, implementing, achieving, reviewing, and maintaining their environmental programs and policy.

An EMS:
- Serves as a tool for improving <u>overall</u> performance, both environmental and agency mission;
- Integrates responsibilities and practices into an overall management system to increase efficiency and reduce environmental impacts.
- Provides a systematic way of managing an organization's environmental affairs by,
  - Identifying and addressing immediate, cumulative and long-term impacts of its missions, services and processes on the environment,
  - Providing order and consistency to address environmental concerns through the allocation of resources, assignment of responsibility and ongoing evaluation of practices procedures and processes; and
- Relies on the concept of continual improvement for success.

B) **_Environmental Policy_** - *A* statement by the organization and/or facility of its intent to take environmental concerns into account and present proof of **_Top Management's Commitment_** to this cause.

C) **_Continual Improvement:_** - Process of enhancing an organization/facility's environmental performance through a recurring cycle of planning, implementing, reviewing and improving.

D) **_Environmental Aspect_** - Any activity or process of an organization's/facility's activities or mission that can interact with and impact the environment.

E) **_Environmental Impact_** - Any change (complete or partial) to the environment, whether adverse or beneficial, resulting from an organization's/facility's functional mission or activities.

F) **_Appropriate Facility_** For the purposes of this EMS guidance, a "facility" that must have an EMS is any Federal property, properties, organization or operation that conducts activities that can have a significant impact on the environment, either directly or indirectly, individually or cumulatively, due to operations of that facility's mission, processes or functions.
   Appropriate Agency Facilities: In accordance with the EO, each agency should determine appropriateness based on the, "size, complexity, and the environmental aspects" of facility operations.

G) **_Organization_** – For the purposes of this guidance an organization is any Federal Agency, Service, Department, region, office, division, bureau or other sub-unit, with overall policy and budget authority. Similar type facilities or programs can be grouped as an organization and covered by an organizational EMS.

H) **_Self Declaration_** – Self declaration occurs when a facility or organization affirms that it is in conformance with the defined elements of a facility or program EMS; the declaration may reflect a formal internal or external audit of the facility or organization EMS against an accepted EMS framework.

The focus on quality principles

To improve environmental management, your organization needs to focus not only on **what** things happen but also on **why** they happen. Over time, the systematic identification and correction of system deficiencies leads to better environmental (*and overall organizational*) performance.

KEYS TO A SUCCESSFUL EMS
1. **Top Management Commitment**
2. **Focus on Continual Improvement**
3. **Flexibility**
4. **Compatibility with Organizational Culture**
5. **Employee Awareness**

1   Top Management Commitment

Applying quality management principles to the environmental area and providing adequate support and resources are the responsibility of **top management**. To initiate and sustain the EMS effort, top management must communicate to all employees the importance of:

- *Making the environment an organizational priority* (effective environmental management as fundamental to the organization's welfare)

- *Integrating environmental management throughout the organization* (environmental management is a way to improve performance across agency missions and priorities)

- *Looking at problems as opportunities* (identifying problems, determining root causes and preventing problem recurrence benefits the organization.)

2   Focus on Continual Improvement

A robust management system learns from successes and mistakes. Continual improvement through periodic review and course correction can, with time, minimize environmental impacts and enhance overall performance.

3.   Flexibility

An effective EMS must be **dynamic** to allow your organization to adapt to a quickly changing environment. For this reason, you should keep your EMS flexible and simple. This also helps make your EMS **understandable for the people who must implement** it - your organization's managers and other employees.

4 Compatibility with Organizational Culture

An EMS should be reflective of and compatible with an organization's culture. Implementing an EMS involves a choice: (1) tailoring the EMS to the culture, or (2) changing the culture to be compatible with the EMS approach, (3) Using EMS to advance priorities of the organization. Bear in mind that changing an organization's culture can be a long-term process. Keeping this compatibility issue in mind will help you ensure that the EMS meets your organization's needs and is successful.

5 Employee Awareness and Involvement

As you design and implement an EMS, roadblocks may be encountered. Some people may view an EMS as bureaucracy or extra expense. There also may be resistance to change or fear of new responsibilities. To overcome potential setbacks, ensure that everyone understands **why** the organization needs an effective EMS, **what** their role is and **how** an EMS will help to control environmental impacts in a cost-effective manner while benefiting your facility's overall mission. Employee involvement helps to demonstrate the organization's commitment to the environment **and** helps to ensure that the EMS is realistic, practical and adds value.

Building or improving an EMS provides an opportunity to assess how your organization manages environmental obligations and to find better (and more cost-effective)

solutions. While you will probably identify some areas where your current situation can be improved, this does **not** mean that you should change things that are working well! By reviewing what your organization does and how well it works, you can ensure that your EMS will be viable and effective, both now and in the future. A thorough job function and activity analysis of an organization will give a clear, concise

Major Components of an EMS are:

- *Policy*
- *Planning*
- *Implementation and Operation*
- *Checking and Corrective Action*
- *Management Review*

picture of how each shop, daily activity, or industrial process can have the potential for creating environmental aspects and impacts, and how these can be lessened or completely eliminated.

Don't get discouraged if your system has some bugs at first - the focus is on *continual improvement*!

Most EMS models (including the ISO 14001 standard and CEMP) are built on the "Plan, Do, Check, Act" model and reflect the concept of *continual improvement*.

In the EMS model described, the "Plan, Do, Check, Act" steps have been expanded into eighteen elements that are *linked together*.

MAJOR COMPONENTS OF AN EMS

START

Environmental Policy

Management Review

Continual Improvement

Planning
- ➢ Environmental Aspects
- ➢ Legal & Other Reqt's
- ➢ Objective & Targets
- ➢ Environmental Management Program

Checking/ Corrective Action
- ➢ Monitor & Measure
- ➢ Nonconformance & Corrective & Preventative Actions
- ➢ Records & EMS Audits

Implementation
- ➢ Structure & Responsibility
- ➢ Training, Awareness, Competence
- ➢ Communication
- ➢ EMS Documentation
- ➢ Document Control
- ➢ Operational Control

1) Policy Statement endorsed by Top Management

Obtaining top management commitment is the first essential element in developing a successful EMS. The importance of obtaining buy-in and support of agency or facility leaders cannot be overemphasized. Once senior managers are engaged, work can accelerate on preparing an environmental policy statement. The policy statement should reflect the nature and scale of the organization's activities, and embody the organization's commitment to compliance with laws and applicable requirements, prevention of pollution, and continuous improvement.

2) Planning - identifying impacts, setting goals and targets, tracking, and developing systems

Planning is the next key element in developing a successful EMS Managers may find it useful to review existing planning and budget documents as they reflect on the organization's missions, location, activities, and history. Using existing system elements, terminology, and concepts, wherever possible, will save time and resources and allow the EMS to fit more naturally into the organization's culture. A key task is the identification of environmental objectives and targets. Objectives describe the organization's goals for environmental performance. Targets are specific and measurable intermediate steps that can be measured in terms of obtaining the objectives.

3) Implementation and Operation - assigning roles, training, communication, documentation, and preparedness

Successful implementation of an EMS requires clear articulation of environmental responsibilities across the various elements of an organization. Environmental responsibilities cannot be confined to the environmental office or a designated bureau;

they must be recognized as a prime responsibility of all employees, including line management. Other important parts of the implementation and operation element of an EMS include:

- Training, Awareness, and Competency
- Communication and Reporting
- EMS Documentation
- Operational Control
- Emergency Preparedness and Response

4) Checking and Corrective Action - establishing ways to monitor, identify and correct problems

As an EMS is implemented, managers will most likely find various system deficiencies. This is normal and to be expected. No system is perfect. It is critical to establish a procedure to identify and assess the root cause(s) of the deficiency and to take corrective actions to remediate the problem. It is important to monitor the effect of the corrective actions as well, in order to determine if they are effective in remedying the deficiency. If not, the problem itself may not have been accurately diagnosed. Continuing or multiple deficiencies may indicate fundamental, systemic deficiencies that warrant further examination and response. Checking and corrective action are typically ongoing activities.

5) Management Review focused towards continuous improvement

Management must periodically step back and evaluate the performance of the EMS as a whole. EO 13148 states that an EMS should be reviewed and updated annually. Reviews will vary according to the size and nature of your organization and how stable or dynamic your external influences are. Managers should be encouraged to make public some form of the results of the management review.

Eighteen Essential Elements of an EMS:

Eighteen Essential Elements of an EMS:

1. Environmental policy
2. Environmental aspects and impacts
3. Gap Analysis
4. Legal and other requirements
5. Objectives and targets
6. Environmental management program
7. Structure and responsibility
8. Training, awareness and competence
9. Communication
10. Document control
11. Operational control
12. Emergency preparedness and response
13. Monitoring and measurement –
14. Corrective & preventive action
15. Records
16. EMS audit
17. Management review
18. EMS documentation

An EMS can be informal, with minimal documentation; this is a common approach in some small organizations. Or it can be formal and fully documented. This approach is often taken by large organizations that have many high-risk issues to manage. Whatever the type of EMS, it should accomplish core goals of pollution prevention and environmental compliance.

However, simply having all 18 elements does not ensure an effective EMS. It is the way the elements work together in a systematic manner and how they are integrated with the non environmental components of the organization that make it an effective EMS.

Eighteen Essential Elements of an EMS:

1. **Environmental policy** – Develop a statement of your organization's commitment to environment al excellence. Use this policy as a framework for planning and action. Where possible, tie EMS goals to your agency's overall mission and priorities.

2. **Environmental aspects and impacts** – Identify environmental attributes of your products, activities and services.

3. **Gap Analysis -** Compare your current program to an accepted EMS framework and determine where gaps exist.

4. **Legal and other requirements** – Identify and ensure access to relevant laws and regulations, as well as other requirements to which your organization adheres.

5. **Objectives and targets** – Establish environmental goals for your organization, in line with your policy, environmental impacts, gap analysis, interested parties and other applicable factors. Where possible, align objectives and targets with agency mission and priorities.

6. **Environmental management program** – Plan actions necessary to achieve your objectives and targets.

7. **Structure and responsibility** – Establish roles and responsibilities for environmental management by <u>all </u>facility personnel and provide appropriate resources.

8. **Training, awareness and competence** – Ensure that your employees are trained and capable of carrying out their environmental responsibilities.

9. **Communication** – Establish processes for internal and external communications on environmental management issues.

10. **EMS documentation** – Develop and maintain information on your EMS and related documents.

11. **Document control** – Ensure effective management of procedures and other EMS documents.

12. **Operational control** – Identify, plan and manage your operations and activities in line with your policy, objectives and targets.

13. **Emergency preparedness and response** – Identify potential emergencies and develop procedures for preventing them and responding to them.

14. **Monitoring and measurement** – Monitor key activities and track performance. Conduct periodic assessments of compliance with legal requirements.

15. **Nonconformance and corrective and preventive action** – Identify and correct problems and prevent their recurrence.

16. **Records** – Maintain and manage records of EMS performance.

17. **EMS audit** – Periodically verify that your EMS is operating as intended.

18. **Management review** – Ensure periodic review of your EMS by management with an eye to *continual improvement* of the system, environmental performance, and the ability to support your agency's overall mission and priorities.

What does an EMS consist of and how are the elements related?

PLANNING

POLICY

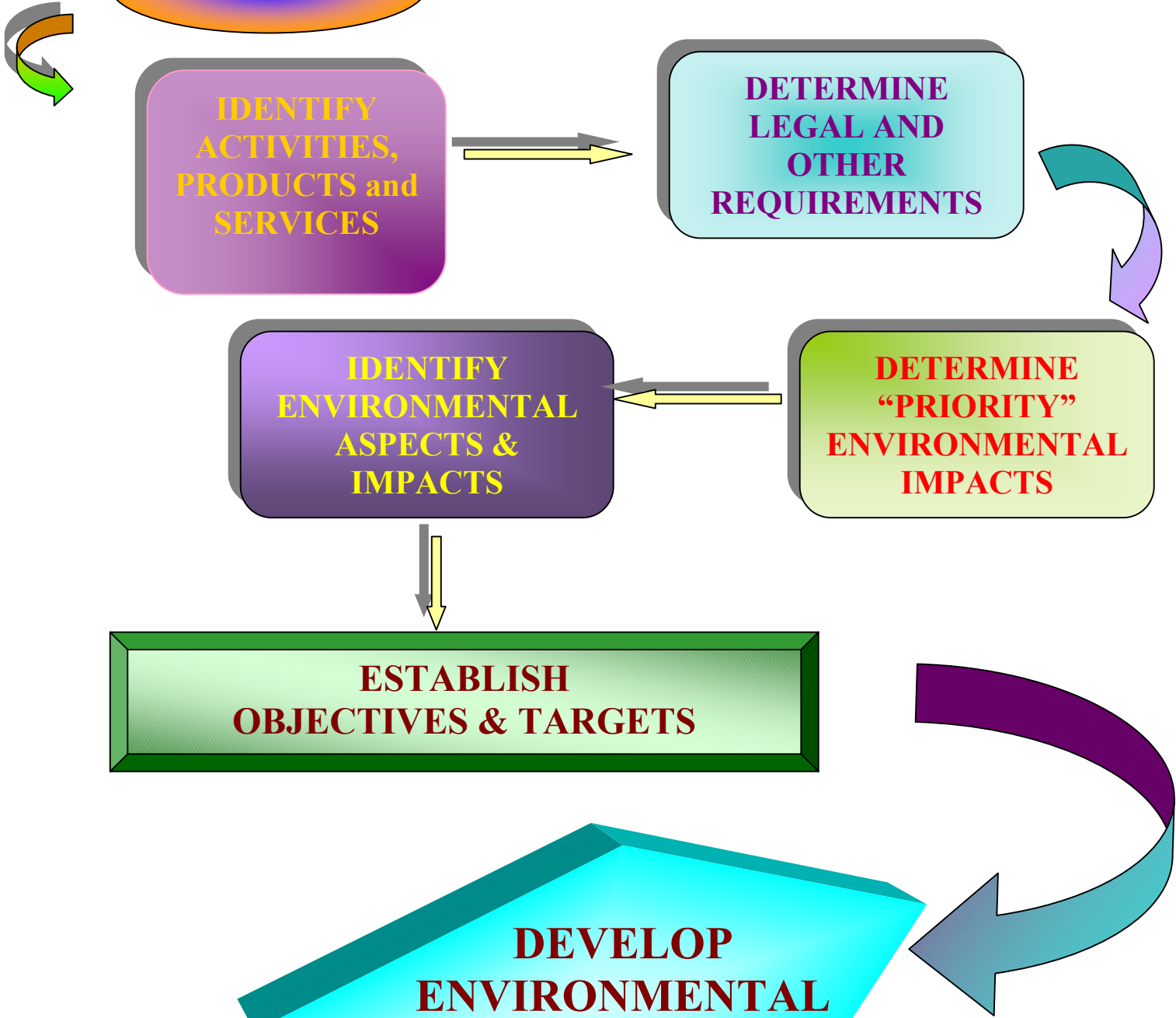**IDENTIFY ACTIVITIES, PRODUCTS and SERVICES**

→

DETERMINE LEGAL AND OTHER REQUIREMENTS

IDENTIFY ENVIRONMENTAL ASPECTS & IMPACTS

←

DETERMINE "PRIORITY" ENVIRONMENTAL IMPACTS

ESTABLISH OBJECTIVES & TARGETS

DEVELOP ENVIRONMENTAL MANAGEMENT PROGRAM

IMPLEMENTATION

Organizational Accountability →

Structure and Responsibility

Capabilities & Communications →

Training Awareness and Competence

Communications

Controls →

EMS Documentation

Controls →

Document Control

Controls →

Operational Control

Controls →

Emergency Preparedness & Response

# CHECKING & CORRECTIVE ACTION

ONGOING MONITORING and MEASURING

NON-CONFORMANCE, CORRECTIVE and PREVENTIVE ACTION

PERIODIC INTERNAL EMS AUDITS
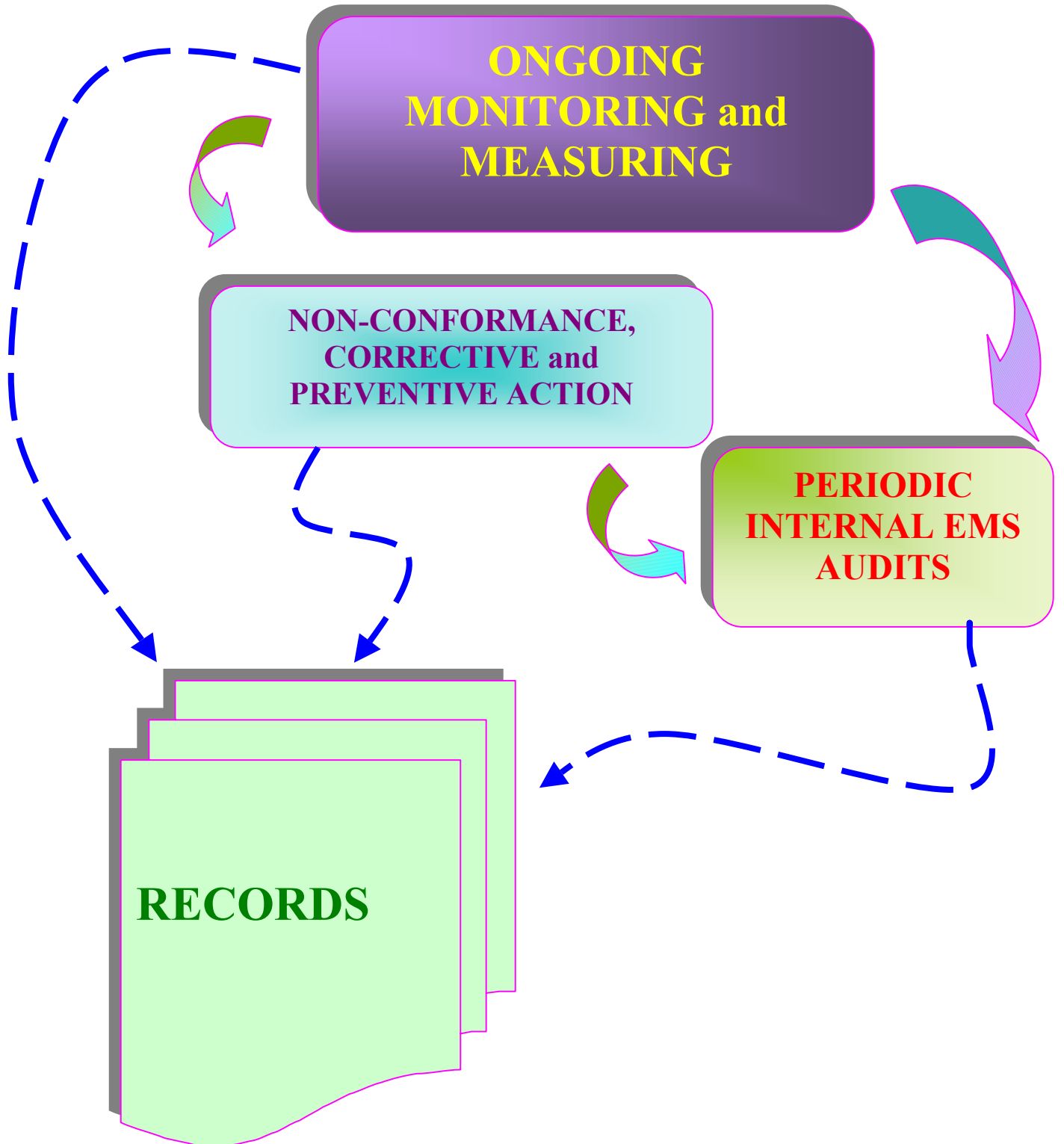
RECORDS

MANAGEMENT REVIEW

Take Account of:
- **Auditing Findings**
- **Progress Records on Objectives**
- **Changes to Facilities**
- **Changes in Activities, Products or Services**
- **Changes in Technology**
- **Concerns of Interested Parties**
- **Other relevant info**
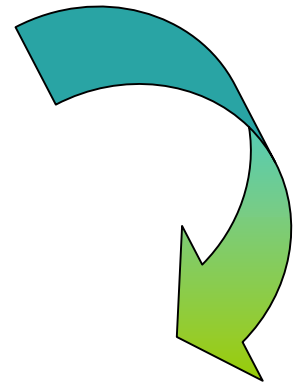
To Assess the
- **Suitability**
- **Adequacy, and**
- **Effectiveness of EMS's**
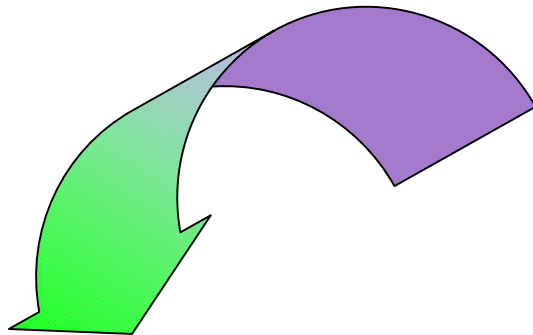
In Order to Determine the Need For Change and Improvement to:
- **The Environmental Policy**
- **The Objectives**
- **Other Elements of the EMS**

BENEFITS

What are some of the potential benefits of an EMS?

Environmental Management Systems can result in both organizational and environmental benefits.

For example, an EMS may help you:

- Reduce environmental impacts and prevent pollution;

- Make excellence in environmental management systems a tool for accomplishing your agency's overall purpose and priorities;

- Improve overall environmental performance and enhances compliance;

- Increase efficiency and reduce cost of materials, waste disposal overhead, use of energy, and conserves valuable natural resources;

- More effectively use materials and resources to fulfill organization's/facility's mission;

- Provide a framework for using pollution prevention practices to meet EMS objectives;

- Achieve/Improve Employee awareness of environmental issues and responsibilities;

- Set example for other organizations/facilities to be environmentally responsible for their actions;

- Qualify for recognition/incentive programs such as the EPA Performance Track Program;

- Enhance the organization's image with regulators and public—Possibly resulting in reduced regulatory oversight;

- Improve retention of existing employees and potentially enhance recruitment and strengthen employee morale;

- Promote predictability and consistency in managing environmental obligations;

- More effective targeting of scarce environmental management resources;

- Avoid cost associated with cleanups, fines, and violations;

- Enhance image with public and present good neighbor image to surrounding community and non-organization stakeholders;

- Comply with President's Executive Order 13148;

- Reduce/Mitigate risks of environmental incidents through better risk management.

What EMS challenges do federal facilities face?

Staff at federal facilities faces a variety of challenges in developing and implementing EMSs at their facilities.   Some of these problems include:

• Lack of adequate time to get started on the EMS (and do your normal job).

• An inclination to expend resources on turn-key products vs. staff "owning" essential parts of the system and using contractors to help deliver a system tailored to agency needs.

• A lack of existing training plans, mechanisms, and budget necessary for EMS implementation;

• Lack of clear EMS policies, goals, objectives, and targets;

• Failure to communicate, "lessons learned" to other federal facilities; and

• A lack of top management involvement and visibility - beyond the policy statement;

• Organizational issues - "that's an environmental responsibility" from the shop level or "that's my responsibility" from the environmental office;

• A lack of understanding from public organizations - other stakeholders;

• Political uncertainty – not knowing what the future agency priorities will be;

• Perception that EMS already exists; and

• Misunderstanding of relationship to mission.

It should be noted that an EMS requires a significant investment of financial and human resources for the establishment, implementation and maintenance of an effective EMS and to meet applicable federal, state, and local regulations and requirements.

Internally

• Staff (manager) time and additional funding and management support

• Other employee time and training

(Note: Internal labor costs represent the bulk of the EMS resources expended by most organizations)

Externally

• Potential consulting assistance

• Internal and external training of personnel

What are some areas for improvement for facility EMSs?

• Agencies lack adequate environmental staff and formal training plans and mechanisms and sufficient financial and physical resources to develop to track individual training needs and and to recognize accomplishments;

• Facilities lack formal environmental management programs;

• Facilities lack facility-specific environmental policies, goals, objectives, or targets;

• Facilities lack commitment to go beyond compliance; facilities seek only to meet minimal compliance requirements;

• Work being done does not match job descriptions and performance evaluations;

• Lessons learned (positive and negative) are not shared with other federal facilities, let alone with facilities within the same agency;

• Staff are not asked for their opinion during the policy development;

• Tenant organizations are not held responsible for adhering to a site's EMS; and

• Management is not aware of the work being done.

So Which EMS is Right for You??

While there are several good EMS models and criteria available, such as CEMP or the Baldridge Process, this Guide generally draws upon the ISO 14001 Standards as a starting point for describing EMS elements. This has been done for several reasons:

• ISO 14001 is a widely accepted international standard for EMS that focuses on continual improvement;

• Organizations may be asked to demonstrate conformance with ISO 14001 as a condition of doing business in some communities; and

The ISO Standard is consistent with the key elements found in many EMS models, including the European Union's Eco-Management and Audit Scheme, EPA's Performance Track and the Code of Environmental Management Principles for Federal Agencies, among others.

Some Closing Thoughts:

"An Environmental Management System (EMS) is a tool and a framework that allows an organization to consistently control the effects its operations or processes may have on the environment and to continually improve its business practices.

An EMS is not just a paper standard, it demands the commitment of an entire organization. If the environment benefits and your performance is enhanced, stakeholders realize the great rewards.

The EMS is centered on and driven by environmental impacts.

The EMS promotes integration of environmental management and organization functions by integrating environmental management with other operations and overall management practices.

An EMS aids employee awareness of what is required to achieve the organization's environmental objectives and shows clearly how the various procedures, processes, and activities of the EMS relate to one another and form a unified system.

Of course, there is nothing new about environmental management. What is new, is the dramatically increased emphasis on environmental issues by organizations. Over the last ten years, the media, pressure groups, classroom teachers, and numerous other "enlightened" organizations have been educating today's young adults that human health, biodiversity, even global climate are effected by our negative interactions with the environment. The federal community is slowly realizing that the present generation is very serious about the environment. Smarter organizations are responding very decisively.

Getting right on the environment by controlling risks and realizing financial benefits from improved environmental performance and being visibly seen to do so is challenging. It requires complete and visible commitment from senior management. It requires the active and intelligent participation of every employee of an organization. Each person must have a clear understanding of the actions he or she must undertake in order to avoid environmental incidents that could have a disastrous effect on the organization's finances and reputation.

An EMS effectively fixes an organization's attention on site-based issues of real practical concern to the organization.

In summary; an effective EMS will keep everyone focused on the main goal, real ends, real improvement and real results. An effective tool for on-site managers to control issues that are of real importance in operational terms, an effective tool to use with customers who increasingly care about their suppliers' environmental credentials, and an effective tool for senior management who are hearing more from the stakeholders on these issues.

It works! Let's run with it!"

FURTHER REFERENCE:

Other Useful Guides For Developing An EMS:

	www.ofee.gov
	www.epa.gov/ems
	www.epa.gov/fedsite
	http://www.epa.gov/performancetrack/
	http://www.p2pays.org/iso/faqs.htm
	http://www.iso.ch/iso/en/ISOOnline.frontpage
	http://mswg.org
	https://www.denix.osd.mil/denix/Public/Library/EMS/bench.html OR **https://www.denix.osd.mil/ - Then find above link**
An Implementation Guide for Small and Medium Sized Orgs \ NFS International 2001	**http://www.nsf-isr.org/forms/ems2001final1_12.pdf**
	http://www.peercenter.net/
	http://p2library.nfesc.navy.mil/