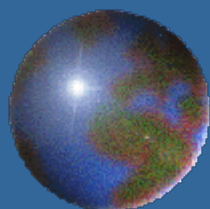




NIEHS

National Institute of
Environmental Health Sciences

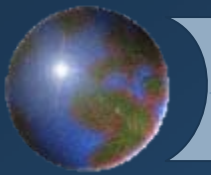


Our Environment – Our Health

The NIEHS Environmental Management System



U.S. Department of Health and Human Services
National Institutes of Health
National Institute of Environmental Health Sciences

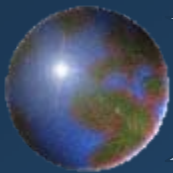


Our Environment – Our Health

Topics

- Introduction – What Is An EMS ?
- What Aspects of NIEHS Can Impact the Environment ?
- Can We Set Objectives and Targets to Improve Environmental Performance ?
- How Can You Be Involved?





**“The frog does not drink up
the pond in which he lives.”**

- American Indian Proverb



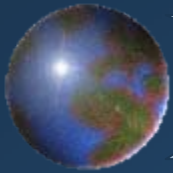
**Our Environment – Our Health
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Find Out How You Are Involved
In Shaping Our Environment



U.S. Department of Health and Human Services
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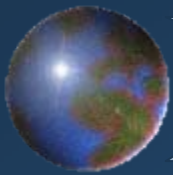
Visit the NIEHS EMS Website <http://www.niehs.nih.gov/ems/home.htm> or call 541-7933 for more information.



What Is An EMS ?

- An EMS is an approach to identifying the ways that our work activities impact the environment. It guides our priorities and it challenges all of us to continually find ways of lessening those impacts.
- An EMS is a formal documented system that ensures environmental issues are considered **at all levels** throughout the NIEHS.
- Drawing upon existing NIEHS environmental management programs, the EMS **systematically** addresses the variety of activities at the NIEHS that impact our environment.





“Islands of Excellence”

We have many excellent Environmental Management Programs at NIEHS that focus on protecting the local environment

Recycling

Resource / Energy Conservation



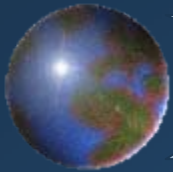
Hazardous Waste Management

Wastewater Pollution Prevention

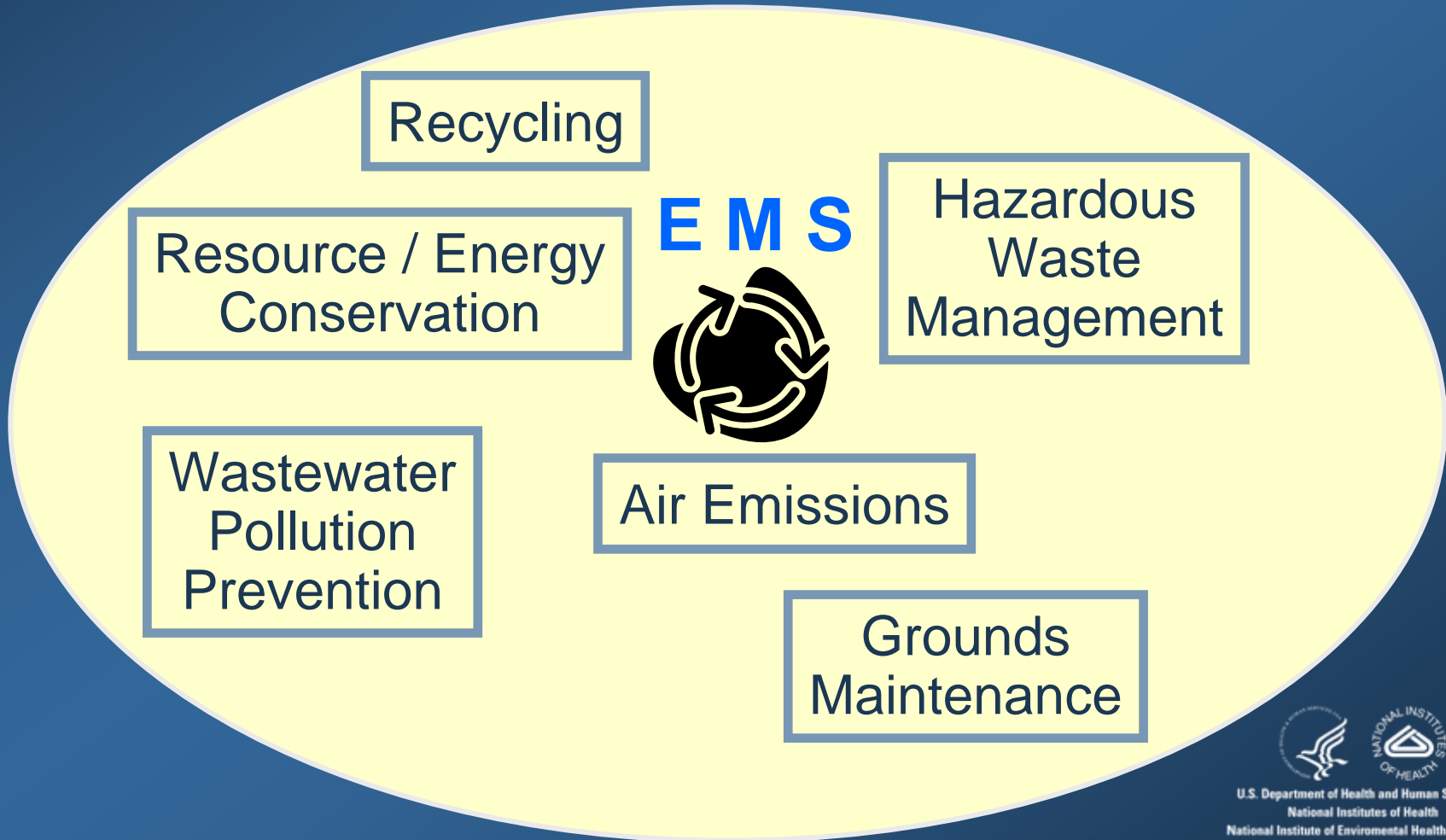
Air Emissions

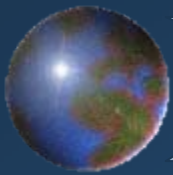
Grounds Maintenance





Our Environmental Management System ties them together as *Integrated Programs*



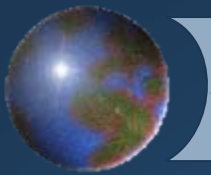


Why Should We Have An EMS ?

There are several incentives:

- It supports our mission
- An EMS enhances the Institute's proactive approach for environmental stewardship
- It is far better to manage ***how we interact*** with the environment now, than later deal with ***what we have done*** to the environment
- Because we have to . . .





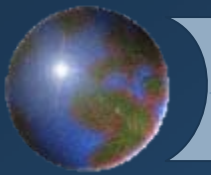
● **Federal Executive Orders**

- ❖ Require all appropriate Federal facilities to develop an effective EMS.

● **OMB Circular A-11** (The Budget Process)

- ❖ "Federal agencies should develop and implement an EMS in order to integrate environmental accountability into day to day decision making and long term planning across all agency missions.."





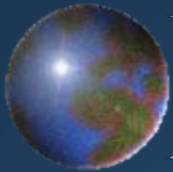
- **Department of Health and Human Services**

- ❖ The DHHS has developed an EMS Framework document that provides basic criteria for all DHHS OPDIVs and facilities, including the NIH and NIEHS

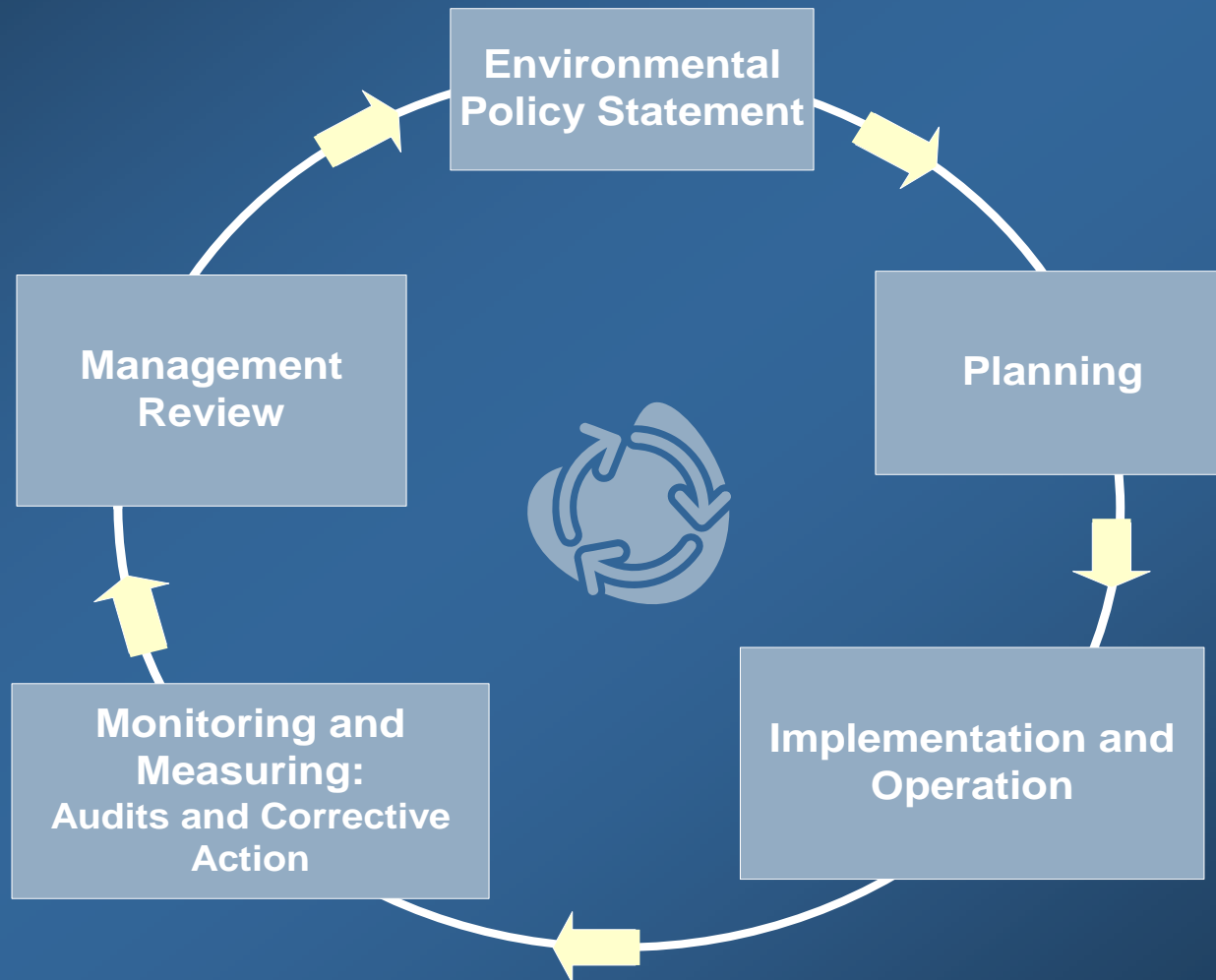
- **ISO 14001 EMS Standard**

- ❖ A standard developed in 1996 by the International Organization for Standardization. Most organizations use the ISO Standard in developing an EMS. It describes a continual improvement process





EMS Process



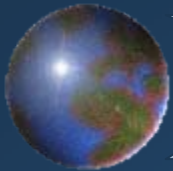


EMS Process



- Establish a *Policy Statement* that is tied to the NIEHS Mission
- Identify the *Aspects* of our operations that impact the environment
- Assess which *Aspects* have significant *Impacts*
- Develop *Objectives, Targets and Controls* to reduce impacts
- Track and document performance
- Review & Adjust (Continual Improvement Process)





NIEHS Environmental Policy

ENVIRONMENTAL POLICY STATEMENT FOR THE NATIONAL INSTITUTE OF ENVIRONMENTAL HEALTH SCIENCES

The NIEHS advances our understanding of the fundamental interrelationship between human health and the environment. It is, therefore, a core value of the Institute to preserve and protect the environment. This will be proactively demonstrated by our continuing commitment to environmental stewardship through pollution prevention, resource conservation, and sustainable development of facilities and programs.

I. Purpose and Policy.

Purpose: This policy establishes general goals and guiding principles for a commitment to environmental responsibility. Through implementation of this policy, the NIEHS will strive to be a leader in the advancement of environmental stewardship within our programs, facilities, and the community.

Policy: The NIEHS mission is to reduce the burden of environmentally associated disease and dysfunction by defining how environmental exposures affect our health, how individuals differ in their susceptibility to these exposures, and how these susceptibilities change over time. In keeping with this mission and to preserve the rights of future generations, the Institute affirms its commitment to environmental excellence and actively promotes the public's right to a healthy, quality environment. The NIEHS will strive to integrate environmental responsibility in its decision-making at all levels and in the conduct of all Institute programs and practices.

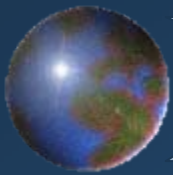
II. General Goals and Guiding Principles

- A. **Compliance with Environmental Requirements.** The NIEHS is committed to exceeding all applicable Federal, state and local environmental laws, statutes and regulations. Where existing laws and regulations are not adequate to ensure protection of public health or the environment, we will establish and meet our own environmental quality standards.
- B. **Environmentally Responsible Planning and Design Principles.** The NIEHS, in conjunction with appropriate NIH offices, will assess the environmental implications in the development, construction, and operation of campus infrastructure, grounds, and buildings. To the extent practical, planning and designs for the maintenance and development of campus facilities will promote environmental sustainability through the efficient use and conservation of resources, landscaping and grounds maintenance practices that are compatible with the local environment, and modes of transportation that minimize environmental impact.
- C. **Built Environment.** The NIEHS will seek to integrate the development and operation of campus infrastructure, grounds and buildings with the natural environment in ways that promote and encourage public health, employee wellness, and quality of work-life.
- D. **Pollution Prevention.** The NIEHS will minimize solid waste generation and the potential release of pollutants into the environment first through source reduction, secondarily through reuse and recycling, and finally through treatment and disposal.

● Advances NIEHS leadership role and commitment to environmental responsibility and sustainability – consistent with our mission.

● Establishes 8 general goals and guiding principles

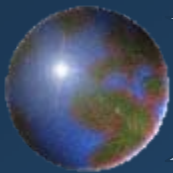




General Goals & Guiding Principles

- Compliance with Environmental Requirements
- Environmentally Responsible Planning and Design Principles
- The Built Environment
- Pollution Prevention
- Hazardous Waste and Toxic Materials
- Commitment to Environmental Education and Awareness
- Environmentally Responsible Purchasing Decisions
- Efficient Use and Conservation of Energy, Water, and Other Resources






NIEHS Environmental Policy

- E. *Hazardous Waste and Toxic Materials.* The NIEHS will actively strive to minimize the generation of hazardous wastes. The Institute will maintain policies and processes for the safe and efficient use, tracking, storage, and disposal of hazardous and toxic materials.
- F. *Commitment to Environmental Education and Awareness.* The NIEHS recognizes the value of on-going education and awareness of all employees and on-site contractors concerning the importance of environmental responsibility in all phases of Institute operations. Further, the Institute is committed to provide relevant and accurate information on the Institute's environmental performance to the public.
- G. *Environmentally Responsible Purchasing Decisions.* The NIEHS recognizes that environmental responsibility can be exercised through its purchasing choices. Accordingly, the Institute will strive to obtain the "best value" by balancing short and long-term costs, including consideration of the environmental, life cycle, and maintenance costs in purchasing products and services.
- H. *Efficient Use and Conservation of Energy, Water, and Other Resources.* The NIEHS will strive to reduce resource consumption by eliminating wasteful practices and promoting efficient use, and by evaluating and implementing feasible and practical conservation measures in existing buildings, renovations, and new construction.


III. Implementation and Review

The Office of Management, Health and Safety Branch, in coordination with the NIH Office of Research Facilities shall be responsible for administering and monitoring this policy through implementation of an Environmental Management System. All NIEHS employees and staff are expected to support the Institute's effort to meet the goals of this policy and are encouraged to offer comments and suggestions for improvement. The Health and Safety Branch will coordinate an annual review of this policy statement and develop recommendations for improvements and updates as needed.

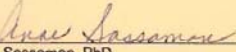
September, 2005



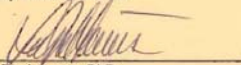
 David Schwartz, MD
 Director, NIEHS




 Samuel Wilson, MD
 Deputy Director, NIEHS



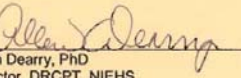
 Anne Sassaman, PhD
 Director, DERT, NIEHS



 Lutz Birnbaumer, PhD
 Director, DIR, NIEHS



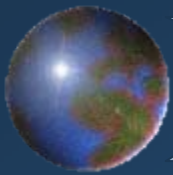
 Richard Freed, MSB
 Associate Director for Management, NIEHS



 Allen Dearry, PhD
 Director, DRCPT, NIEHS

- EMS implemented through a partnership effort of NIEHS and NIH/ORF
- ALL employees are involved in a continual improvement process
- Commitment by NIEHS Senior Leadership





Environmental Aspects and Impacts

EMS planning requires that we take a careful look at each *aspect* of the environment and how they could be *impacted* by our activities and processes.

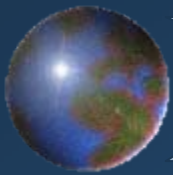
● Environmental Aspects

Elements of an organization's activities, products or services which can interact with the environment. (For example: wastewater discharges, air emissions, resource consumption, energy usage, ecosystem alterations, etc.)

● Environmental Impacts

Any change to the environment, whether adverse or beneficial, wholly or partly resulting from an organization's activities, products, or services (For example: air pollution from the combustion of fuels is an impact because it degrades air quality).





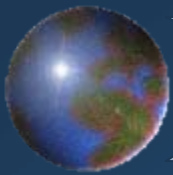
Activities, Products and Services

What do we do here at NIEHS?

The inventory of activities, products and services should consider:

- ❖ Our mission (what the facility is designed to do)
- ❖ Activities that support the mission
- ❖ Operations that are both regulated and not regulated





Some NIEHS Examples

Activities, Products, and Services

Biomedical/Laboratory Research

Animal Husbandry

Building Maintenance

Grounds Maintenance

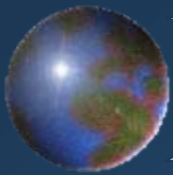
Building Utility Services

Office Services / Operations

Cafeteria Services

Waste Management





Sub-Division of Activities

Each activity can involve several operations or sub-activities

Animal Husbandry, for example, involves

- ❖ Animal bedding and feed systems
- ❖ Cage wash operations
- ❖ Veterinary care and animal facility operations
- ❖ Necropsy
- ❖ Pest Control



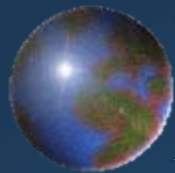


Operational Controls

The people who actually perform the activity know best what the impacts may be and how to control them. Thus, the EMS needs every employee to be involved!

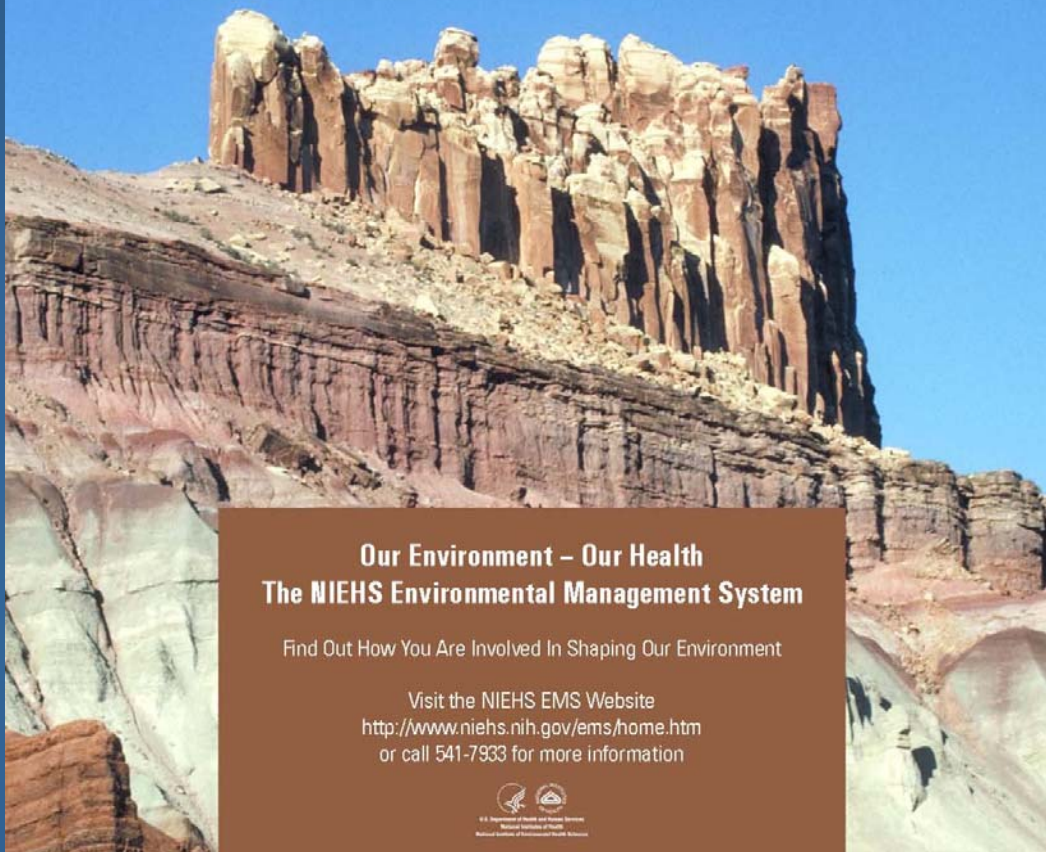
- ❖ Evaluate and characterize the activities, products and services of your work
- ❖ Identify aspects and impacts for each activity, product, or service
- ❖ Come up with ideas to prevent or lessen the impacts on the environment





"One Touch of nature makes the whole world kin."

- William Shakespeare (1564-1616), Troilus and Cressida



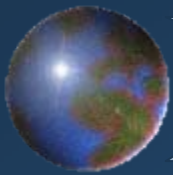
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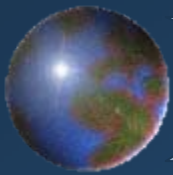
U.S. Department of Health and Human Services
National Institutes of Health
National Institute of Environmental Health Sciences



Determine Significance

- Not all impacts are equally significant.
- The EMS helps set priorities for action based on –
 - ❖ How often the activity is performed
 - ❖ How severe the impact could be
 - ❖ Probability or likelihood that the impact may occur
 - ❖ What kind and amount of resources are used and recovered
 - ❖ And other factors



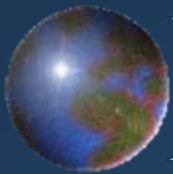


EMS Objectives And Targets

- Environmental Objectives and Targets are established based on the review of activities and processes.
 - ❖ Objectives are closely tied to and focus on achieving the General Goals and Guiding Principles in the NIEHS Environmental Policy.
 - ❖ Targets are set for each Objective that define the actual performance that will reduce the environmental impacts. Targets are stated in measurable terms.

Objectives and Targets are created and modified on a regular basis to reflect changes in facility operations.

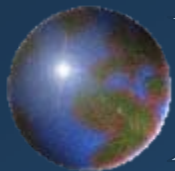




Environmental Management Initiatives

- An action plan is developed for each EMS objective and target. This action plan becomes an NIEHS *Environmental Management Initiative*.
- Some of the action plan considerations include:
 - ❖ What environmental controls and protections are currently in place?; How can they be improved?
 - ❖ Who are the “stakeholders”
 - ❖ Who is responsible for which actions?
 - ❖ Are chemicals involved (volume, toxicity, etc)?
 - ❖ Can resources be recovered or recycled?
 - ❖ Can wastes be reduced?
 - ❖ Are the improvements feasible and reasonable in cost?
 - ❖ Are there ways to measure progress?





NIEHS Facility Wide Example

Significant Aspect: Air Emissions

Environmental Impact: Air pollution from the combustion of fossil fuels

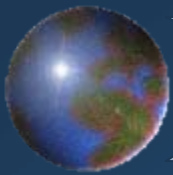
Objective: Reduce petroleum fuel usage by NIEHS fleet vehicles

Target: Achieve 20% reduction in petroleum fuel usage rate over 1999 baseline

Initiative: Acquire Flexible Fueled Vehicles such that 70% of the NIEHS vehicle fleet qualifies as FFVs. Provide an on-campus source of ethanol based E-85 fuel

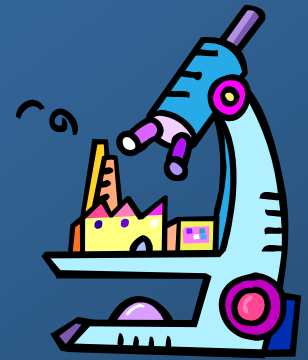
The currently active NIEHS EMS Objectives and Targets are described at <http://www.niehs.nih.gov/ems/home.htm>

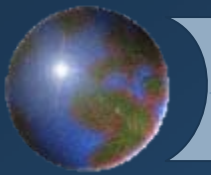




EMS Auditing

- The Environmental Management System process requires that we periodically check our progress and make course corrections. This is accomplished by conducting an EMS Audit.
- The audit is a systematic and documented process of verifying whether an EMS conforms to the criteria set by the organization. Most EMS audits compare the EMS against the ISO 14001 EMS standard elements.
- The audit results must be communicated to and reviewed by management. In this way, the EMS is continually improved and new / revised objectives, targets and controls are established.



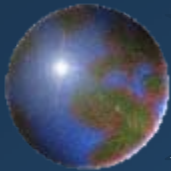


EMS Audits

Audits can be either “Internal” or “External”

- ❖ Internal audits (First Party audits) are those done by the participants of the EMS being audited (such as employees, or consultants as agents of the organization)
- ❖ External audits are performed by auditors from outside the EMS in question (but could be from the same organization) or by Third Party, independent registrars





**“All the flowers
of all the tomorrows are in
the seeds of today”**

- Chinese Proverb

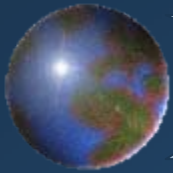
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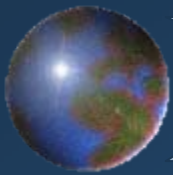
U.S. Department of Health and Human Services
National Institutes of Health
National Institute of Environmental Health Sciences



How Am I Involved?

- First, *make a commitment* to become involved! Every job at NIEHS has some potential interaction with our environment. Increase your awareness of these interactions and consider ways you can reduce negative environmental impacts.
- *Let us know if have an idea* on how we can be better environmental stewards. You can do this by:
 - ❖ Discussing with your supervisor,
 - ❖ Contacting the EMS Workgroup, or HSB
 - ❖ Submitting an idea to the Quality Council, or the Environmental Awareness Advisory Committee



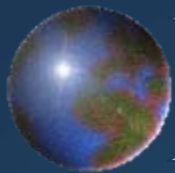


How Am I Involved?



- *Participate in the environmental initiatives* that are currently available, such as our resource recycling, energy conservation, Transshare, and other programs.
- *Follow environmental control procedures* that involve your job tasks, such as hazardous waste disposal guidelines, or spill prevention plans.





An Effective EMS Yields Many Benefits

- Environmental impacts from our activities are reduced
- Consistently applied procedures and controls help ensure environmental compliance
- The efficiency of our energy and resource use is improved
- We reduce the amount of wastes we generate
- Our safety and health is enhanced
- Our research mission is environmentally sustainable



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