

EPA Mid-Atlantic Philadelphia Office Environmental Management System



***Background and your
responsibility in our EMS***

June 2006

Goal of Presentation: Awareness

1. What is an Environmental Management Systems (EMS)?
2. What is our EMS policy?
3. What are our EMS objectives?
4. What is my role and responsibility?



Environmental Management System

- ▶ **Environmental** - reducing impacts of your activities, products and services
- ▶ **Management** - policy, plans, procedures, evaluation, measurement, responsibility
- ▶ **System** - structure for operation, assessment and corrective action



Outcomes of an EMS

- ▶ Continuous Improvement
- ▶ Pollution Prevention
- ▶ Compliance
- ▶ Streamlining of Operations
- ▶ Efficient Use of Materials and Supplies
- ▶ Potential for Cost Savings
- ▶ Employee/Community Participation



Stages of an EMS

- ▶ Commitment and Policy

Plan

- ▶ Aspects and Impacts

- ▶ Implementation and Integration

Do

- ▶ Auditing and Evaluation

Check

- ▶ Management Review

Act

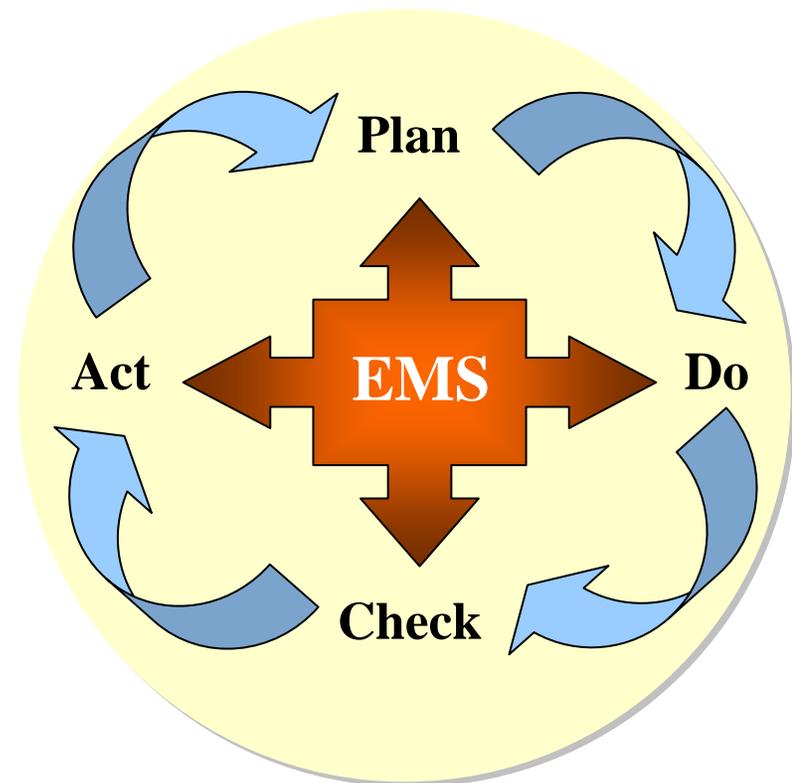


Continuous Improvement

▶ Annual cycle to provide structure to:

- Address compliance
- Improve performance
- Achieve objectives

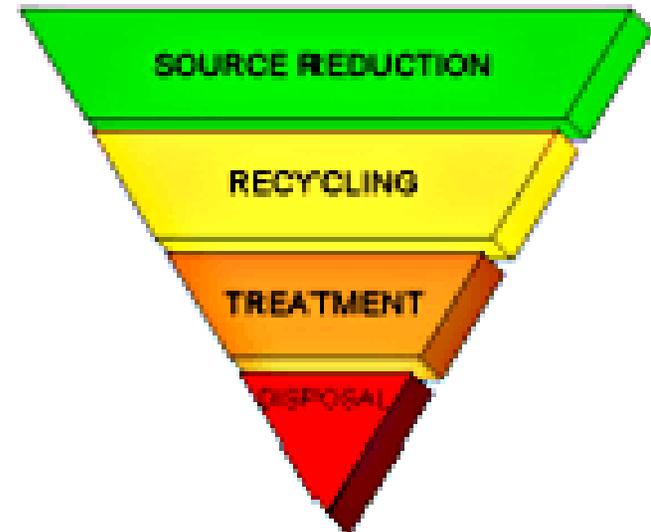
EMS is a process,
not an event



Pollution Prevention

- ▶ Prevent as much waste as possible
- ▶ Recycle any waste you do create
- ▶ Treat any waste that can't be recycled
- ▶ Dispose of any waste that can't be treated

P2 HIERARCHY



Executive Order 13148

- ▶ Greening the Government Through Leadership in EMS
- ▶ Signed April 21, 2000
- ▶ Head of each Federal agency responsible for meeting the goals and requirements of this order
- ▶ By December 2005, each agency shall implement an EMS at all appropriate agency facilities

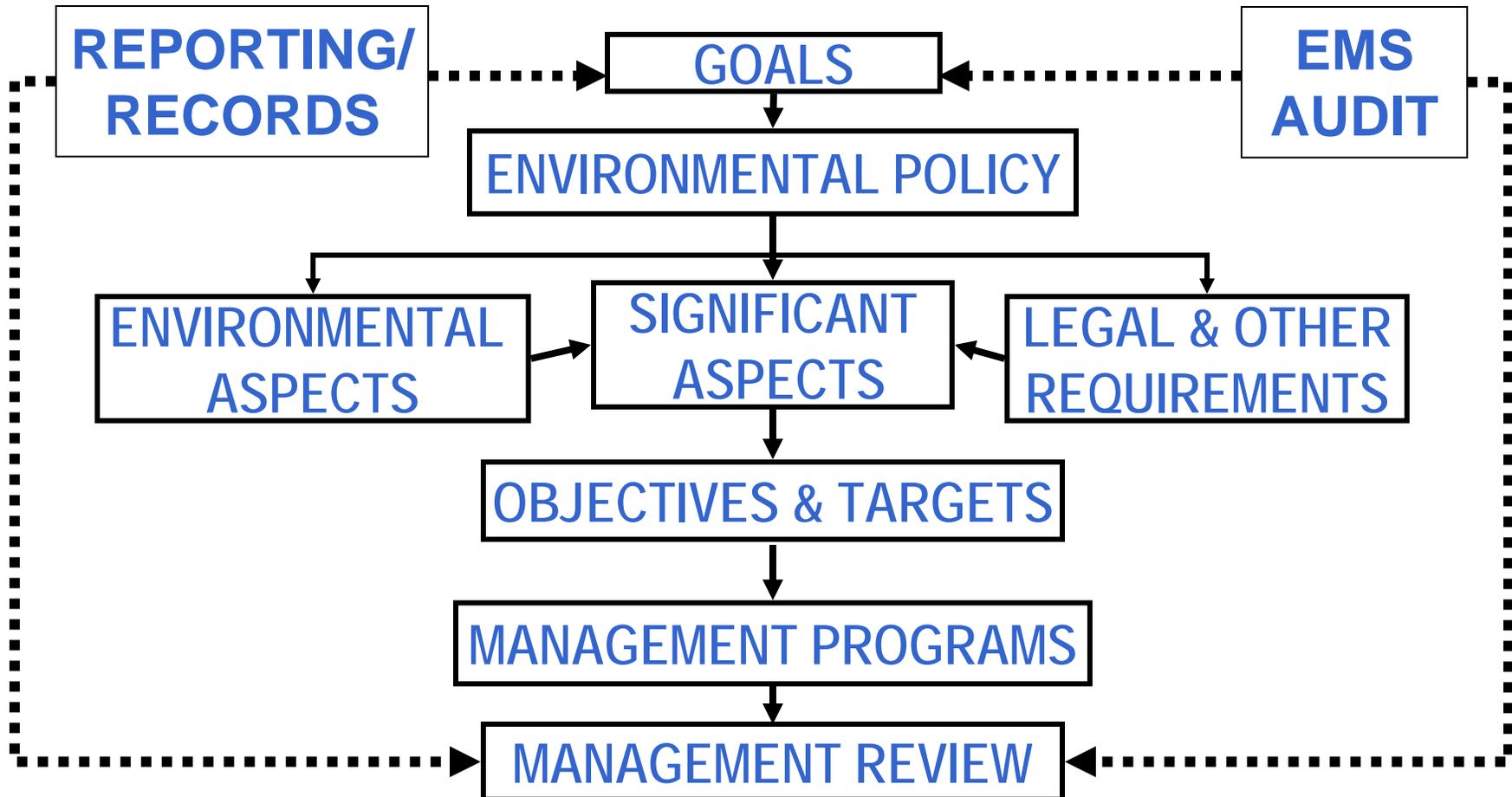


EPA EMS Implementation Plan

- ▶ Identified 34 facilities that need an EMS
- ▶ EPA piloted EMS at Fort Meade Lab
- ▶ Generated guidance and template documents/materials
- ▶ HQ set up 12-step process for self-declaration to EO 13148
- ▶ Region 3 Office first to self-declare and be ISO 14001 - Certified



Elements of an EMS - ISO 14001 Model





- ▶ The source of thousands of international standards
- ▶ Partnership between governments, industry, business and consumer representatives
- ▶ A bridge between public and private sectors

EPA Agency EMS Policy

- ▶ Position Statement signed May 15, 2004
- ▶ Encourage EMS for compliance, P2, public input, and measuring performance
- ▶ EPA doesn't favor ISO over other models
- ▶ EPA will lead by example at our facilities
- ▶ EPA will reduce our facilities' environmental impacts and consumption of natural resources



EPA Region 3 EMS Policy

- ▶ *To manage our organization and programs in a manner that protects the environment, the safety of our employees, and public health.*
- ▶ Established September 2002
- ▶ Revised in September 2004
- ▶ Signed by the Regional Administrator and all managers



How does an EMS work?



Methodology

- ▶ Created an EMS Development Team
- ▶ Briefed all employees about the EMS
- ▶ Solicited input from all employees
- ▶ Used example documents from HQ
- ▶ Used mentoring help from ESC
- ▶ Obtained a consultant to provide guidance



EMS Team

- ▶ EMS Coordinator/Management Representative
- ▶ Representatives from each office/division
- ▶ Work groups for motor pool, building and business machines



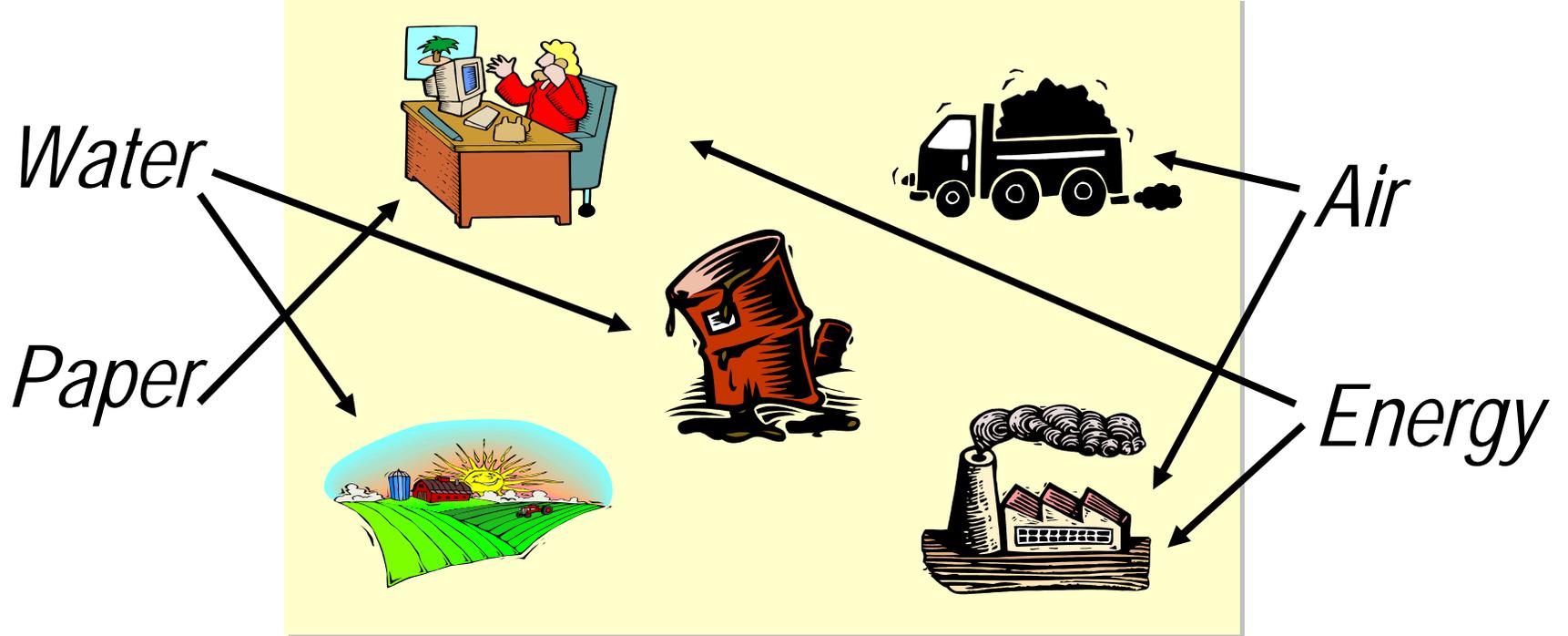
Scope of EMS: EPA Mid-Atlantic Office/Facility

- ▶ High-rise building in downtown Philadelphia
- ▶ 14 of 27 floors - 300,000 square feet of space
- ▶ ¼ acre footprint - no land or landscaping
- ▶ June 1998 - 10-year lease with two 5-year options
- ▶ GSA full-service lease - no electric/water meter
- ▶ 13 offices/divisions
- ▶ 1300 occupants, including more than 150 non-EPA
- ▶ 58 government vehicles used for work travel



“Plan” - Aspects and Impacts

What are the inputs and outputs, causes and effects of our activities, products and services?



Aspects and Impacts

- ▶ **Aspect** - an element of an organization's activities, products or services that can interact with the environment
- ▶ **Impacts** - cause a change in the environment i.e. global warming, eutrophication, acid rain
- ▶ **Significant Aspect** - legal requirements and/or important aspects due to the volume, frequency, toxicity, public perception, or cost



Examples of Aspects and Impacts

▶ Cause = Aspect

- use of paper

▶ Effect = Impact

- Depletion of habitat
- Depletion of natural resources (trees)
- Depletion of natural resources (fossil fuel)



Significant Aspects of our Office

- ▶ Use of Petroleum
- ▶ Use of Electricity
- ▶ Use of Paper
- ▶ Generation of Waste
- ▶ Use of Supplies/Resources



EMS Manual

- ▶ Documents that describe the maintenance and implementation of our EMS
- ▶ Work plans for achieving our objectives and targets
- ▶ Written procedures for how we do things
- ▶ Audit/corrective action program
- ▶ Table of our legal and other requirements



Operational Controls

- ▶ For all significant aspects
- ▶ Describe how tasks should be done -

The way management wants things done!

- ▶ Engineering and administrative controls

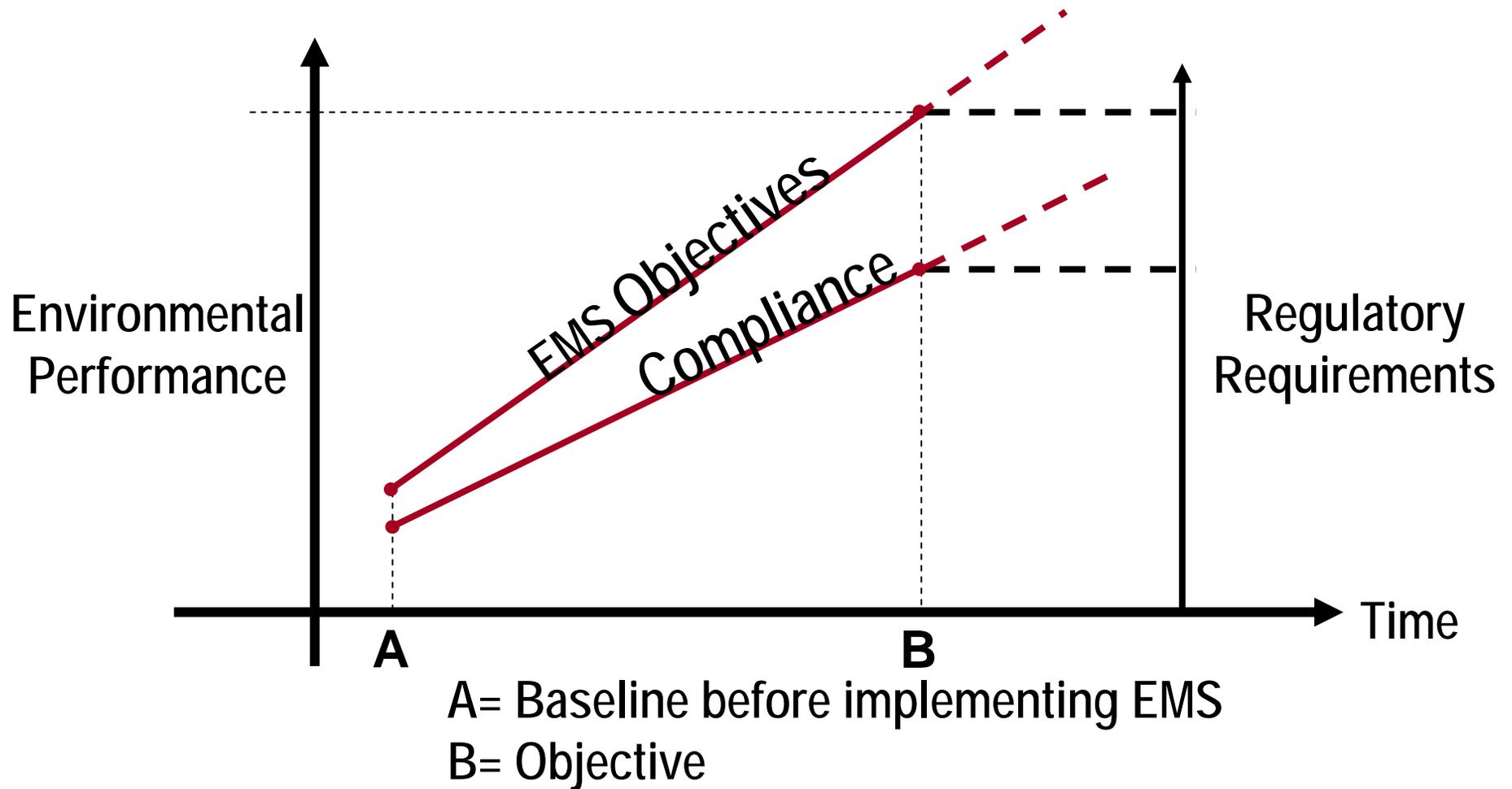


Operational Controls for Our Office

- ▶ Paper use for copying and printing
- ▶ Electricity use in the work station and common areas and for HVAC
- ▶ Petroleum use and waste generation in transport of employees
- ▶ Reduce, re-use, recycling program
- ▶ Green Meetings
- ▶ Green Purchasing



Monitoring and Measurement of Performance Improvement



Electricity Use in Our Building

- ▶ EPA lacks financial incentives to unilaterally invest in energy and water efficiency
- ▶ All other tenants have meters and pay bill
- ▶ 2003 building used 12.6 M kWh of electricity



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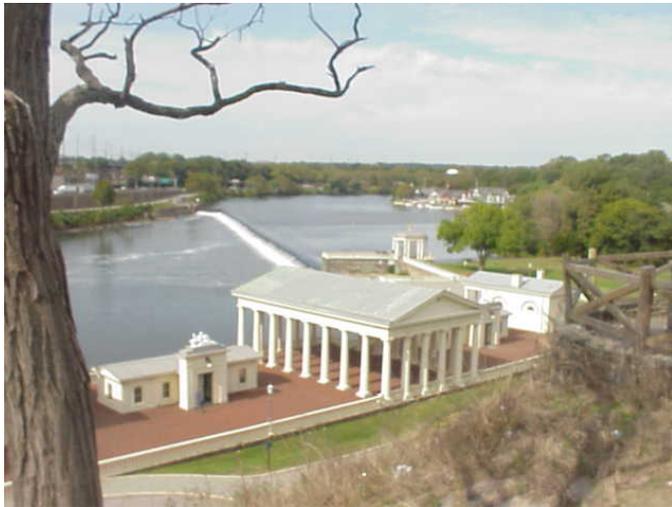
How many
houses?



Answer = 740 4BR Houses

Water Use in Our Building

- ▶ How many minutes of flow at Fairmount Dam on Schuylkill?
- ▶ 13.8 M gal. in 2003



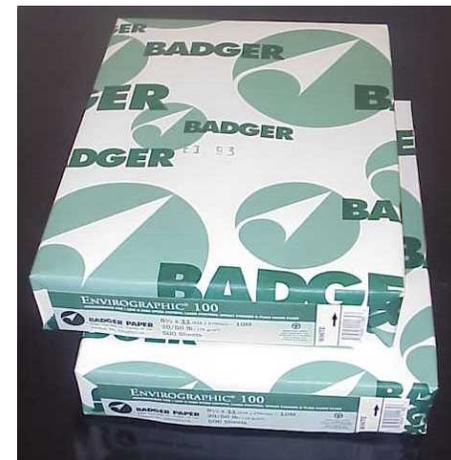
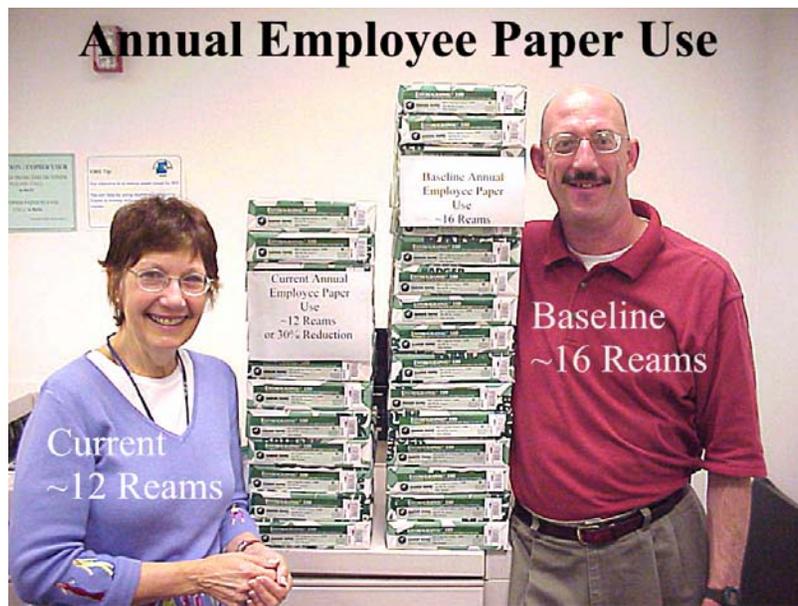
Answer = 15 minutes

Mean flow rate is 1,976 cfs picture taken 10/20/05 at flow rate of 1,800 cfs



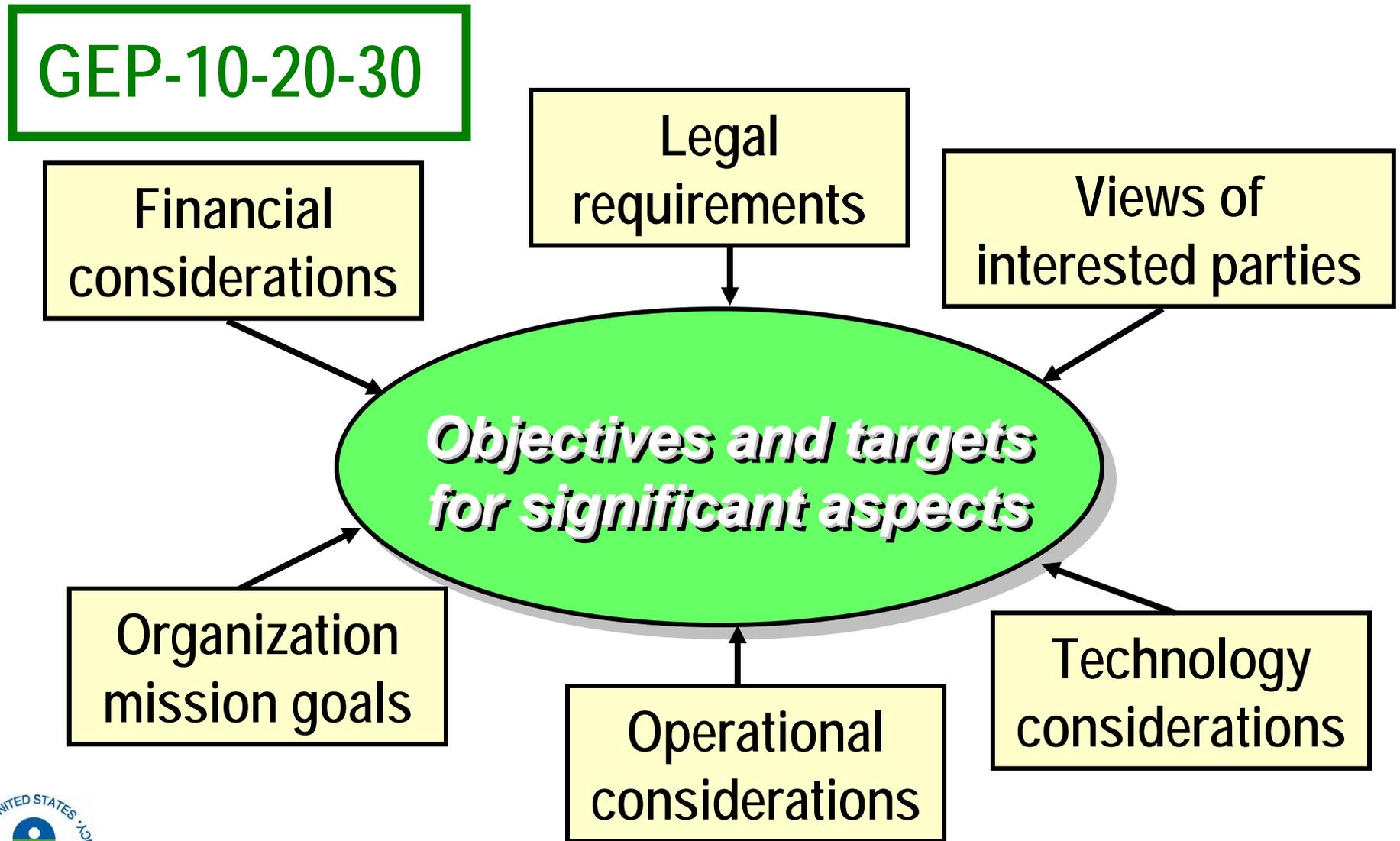
Paper

- ▶ 28% reduction in paper use since baseline was established (July 2002 thru June 2003)
- ▶ How much are we saving a year?



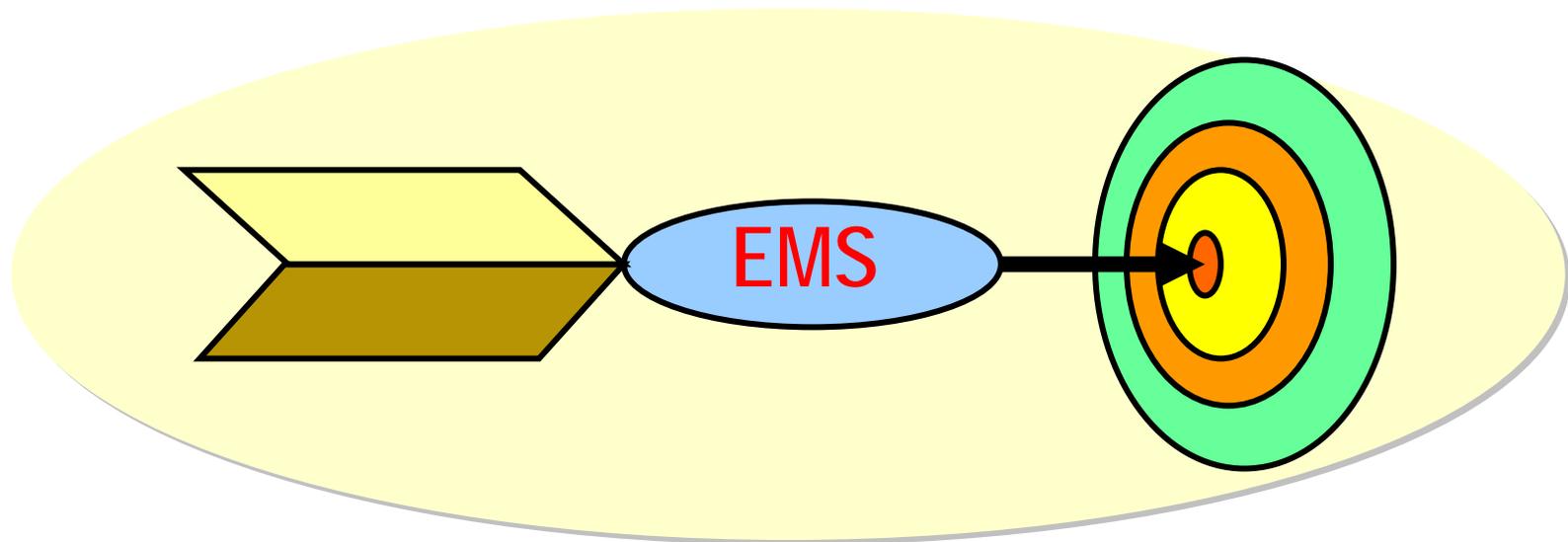
Answer > \$17,000/year

Objectives & Targets



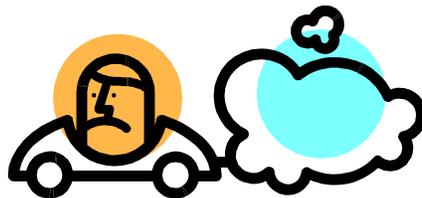
Objectives & Targets

- ▶ Set for all our significant aspects
- ▶ May be set at maintenance level
- ▶ Related to performance metrics
- ▶ How/what can you measure?



Reduce Gasoline Use and Air Emission

- ▶ **Improve average MPG of GSA Fleet by 1 MPG from baseline by FY 2008**
 - Maximize use of our four hybrids vehicles
 - Lease more fuel efficient vehicles
 - Work with GSA to try to obtain more hybrids in 2007 and 2008



Reduce Electricity and Water Use

- ▶ Reduce electricity use by our computers to 65% by FY 2008
 - CSB will install CPU “sleep” software



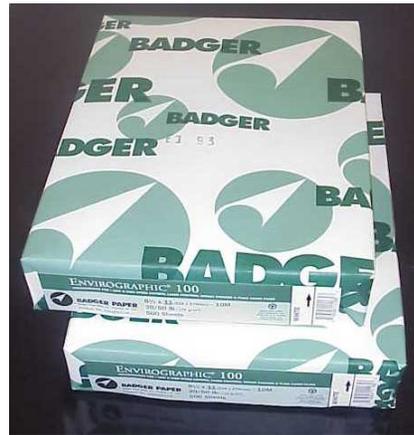
Reduce Electricity and Water Use (continued)

- ▶ Get energy and water saving incentives in our new building lease
- ▶ Our lease expires in 2008



Reduce Paper Use

- ▶ Reduce paper use to 40% of our baseline by FY 2008
 - Paper use stagnant at 1 ream/month/person
 - CSB providing more double sided printers
 - CSB preparing to track individual paper use



Reduce Waste

- ▶ Increase recycling rate in our building to 60% by 2008
- ▶ The building recycling rate is about 37%
- ▶ May need help from other tenants to meet this goal. Met in January with tenants.



Reduce Waste (continued)

- ▶ Re-use or recycle of 100% of electronic and lighting waste that contains hazardous substances by 2008
 - Computers contain lead, cadmium, etc.
 - Fluorescent bulbs contain mercury
 - Office joining Federal Electronic Challenge



Increase Purchase of Green Products

- ▶ Include purchase of green products in our new lease
- ▶ Our building could purchase more environmental preferable products like cleaning supplies and paper products



Increase Purchase of Green Products (continued)

- ▶ Use re-refined oil in 50% of GSA fleet vehicles by FY 2008
- ▶ We can get re-refined oil in Philadelphia for our fleet vehicles



Gasoline

▶ 2003 Baseline –

- 901,368 miles driven
- 44,787 gallons fuel
- 20.1 average fleet MPG



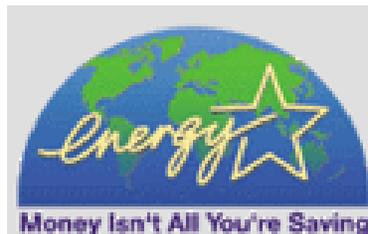
▶ 2004 – Purchased 4 hybrids

- ~ 30K more miles driven
- ~ 500 more gallons of fuel
- 20.5 average fleet MPG
- 2% increase in fleet fuel efficiency (not 5%)
- **1.5% increase** in gas use (not 10% decrease)



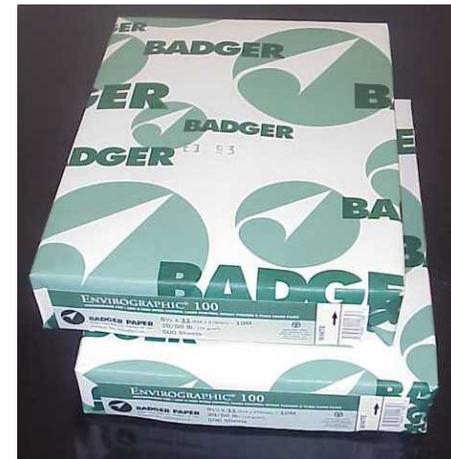
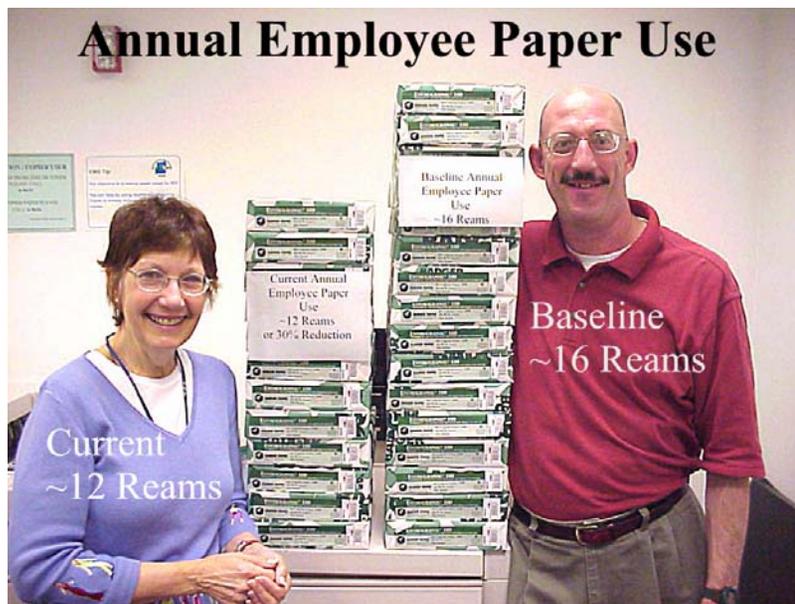
Electricity -Computers

- ▶ First Regional office to implement Monitor Power Sleep mode
- ▶ 135,000 kWh / year -
47% reduction
- ▶ ~ 1% of entire building electric use
- ▶ Reducing CO2 emissions 85
metric tons / year



Paper

- ▶ Baseline July 2002 thru June 2003
- ▶ Two full years of data ~ 29% reduction!
- ▶ Represents savings of over \$17,000 a year
- ▶ FMSB tracking paper delivered to each floor



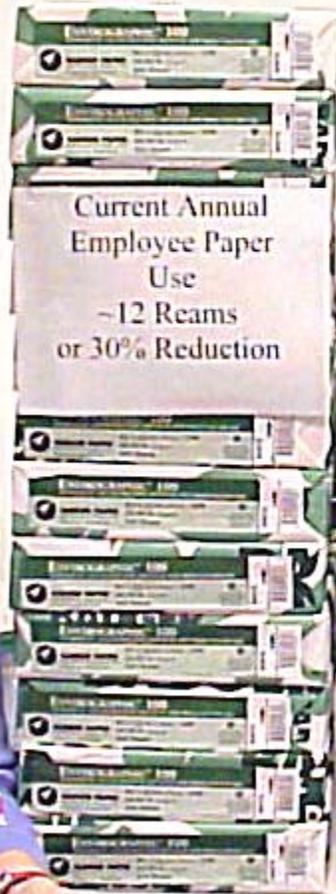
Annual Employee Paper Use

OPERATOR
PLEASE
RECYCLE
PAPER

EWI Tip
Our objective is to reduce paper usage by 30%.
You can help by using recycled paper.
Paper is already recycled in many
places.



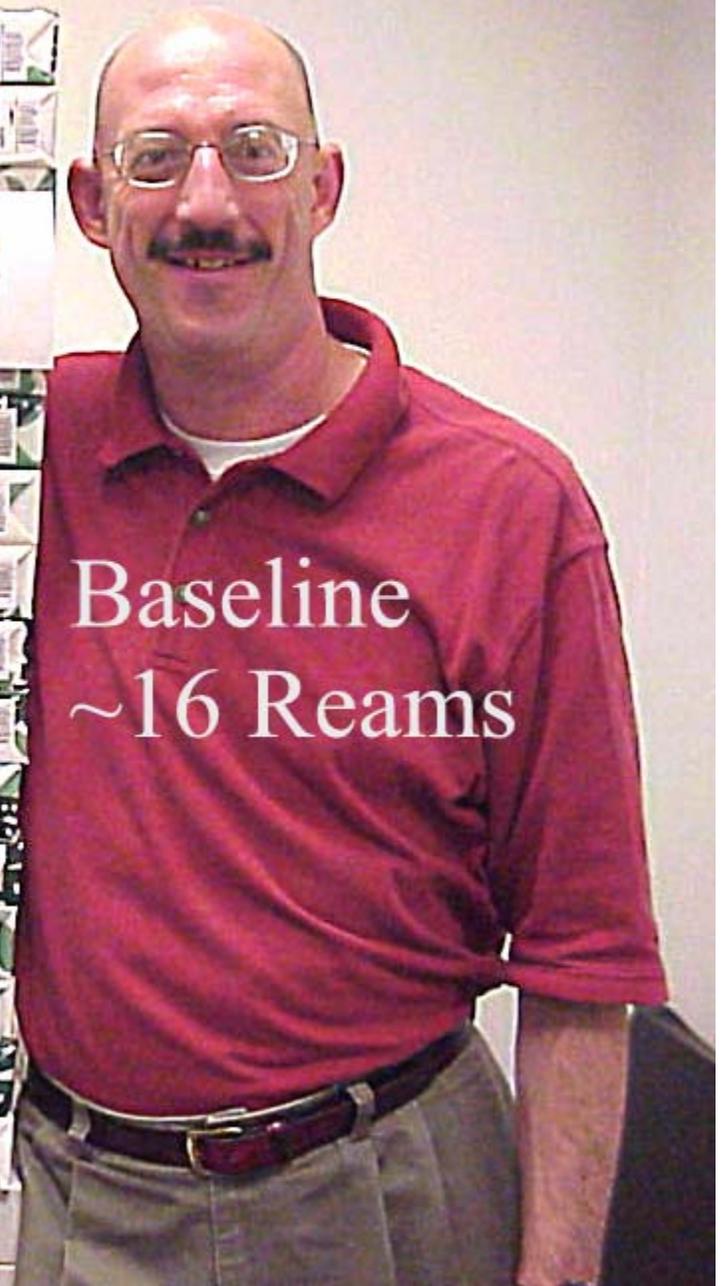
Current
~12 Reams



Current Annual
Employee Paper
Use
~12 Reams
or 30% Reduction



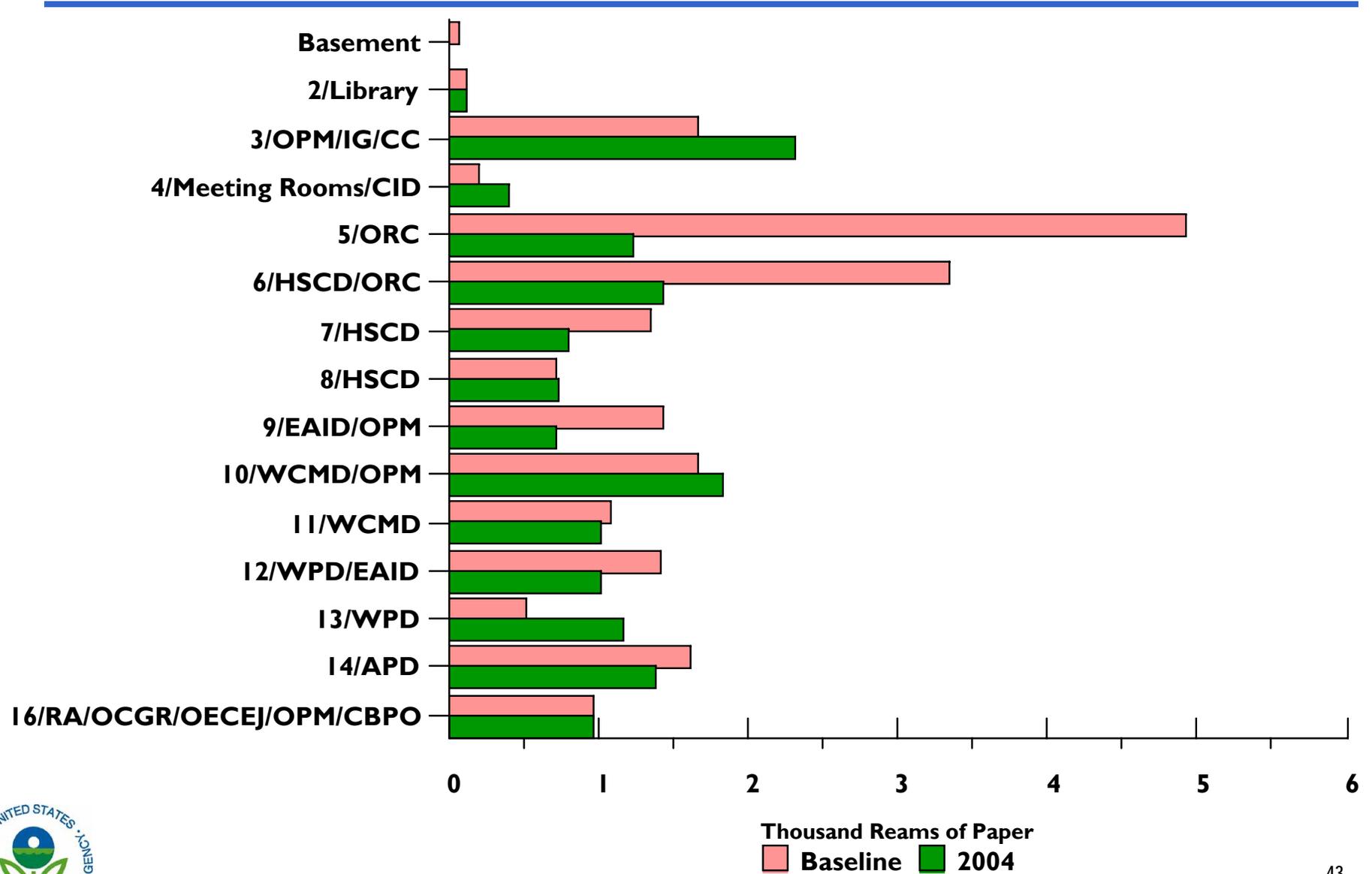
Baseline Annual
Employee Paper
Use
~16 Reams



Baseline
~16 Reams

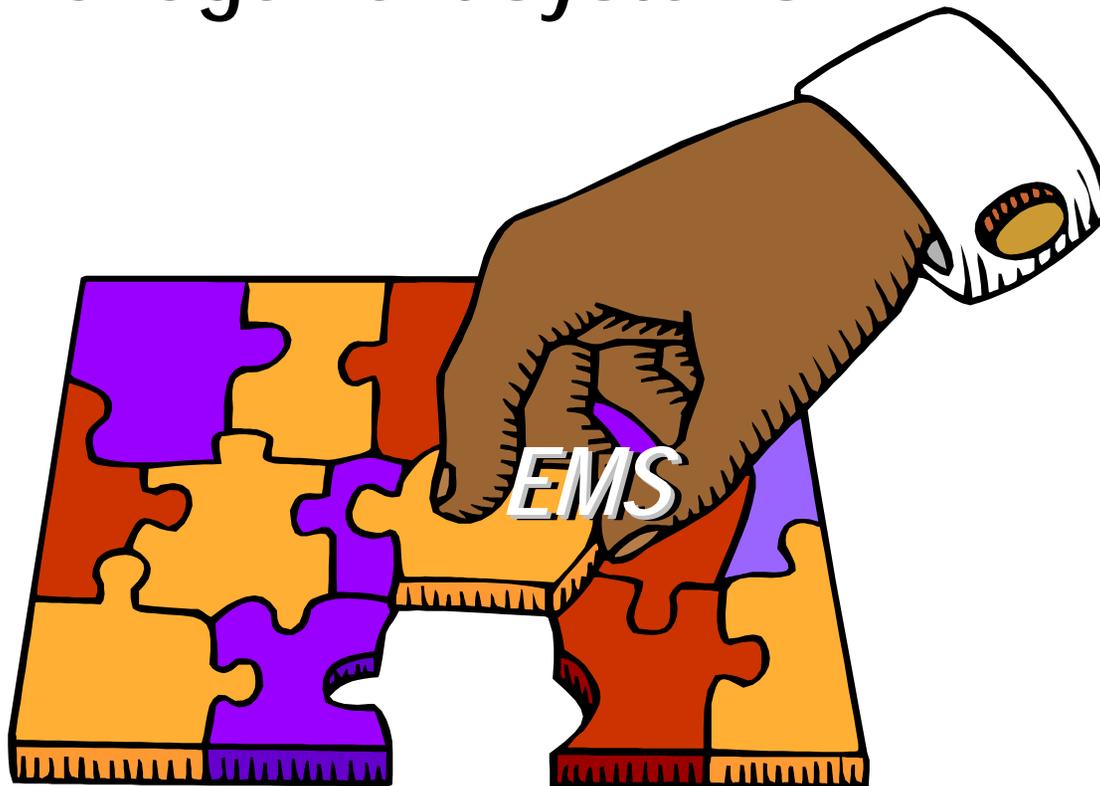
EMS Paper Reduction is Working

Floor/Division/Office



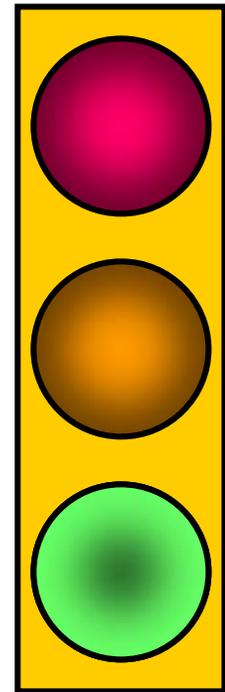
“Do” - Implementation & Integration

Integrate EMS into your existing management systems



“Check” - EMS Audit

- ▶ Adequacy of documents, programs, records
- ▶ Progress towards objectives and targets
- ▶ Management commitment
- ▶ **Employee and occupants awareness and competency**
- ▶ Continuous improvement



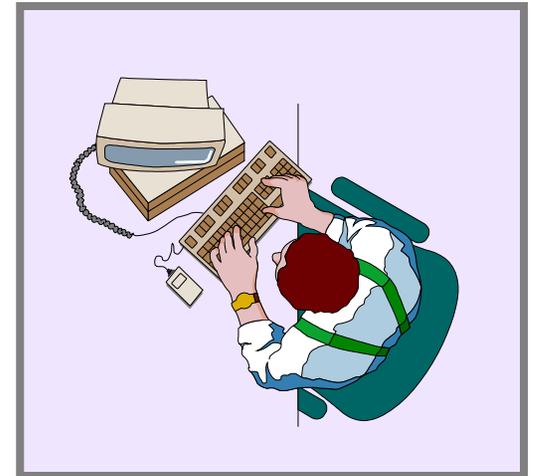
“Act” - Review By Management

- ▶ Based on audit results and measurement of progress and performance
- ▶ EMS Coordinator briefs management and ensures that management decisions are incorporated into the EMS



Occupant Involvement In EMS

- ▶ People working in our office use electricity, paper and resources the same as EPA employees
- ▶ The environmental impact from these activities is the same



**If you're part of the "problem",
you must be part of the solution!**

Presentation Summary

1. What is an Environmental Management System (EMS)?
 - ▶ System to achieve goals
 - ▶ Pollution prevention
 - ▶ Continuous improvement
 - ▶ Plan, do, check, act cycle



Presentation Summary

2. What is our EMS policy?

- ▶ **Protect public health, the environment and the safety of our employees**



Presentation Summary

3. What are our EMS goals?

Reduce our use of gasoline, electricity, paper, and other resources

Increase recycling and the purchase of recycled and other “green” products



Presentation Summary

4. What is my role and responsibility?

- ▶ Conserve resources
- ▶ Know our EMS goals
- ▶ Follow procedures for recycling and saving gasoline, electricity, paper, and resources



Additional Information

- ▶ On the web at: www.epa.gov/region3/ems/facility
the **yellow box** has employee information
- ▶ HSCD Representatives
 - Primary, Joanne Marinelli x- 3134
 - Backup, Laura DiCriscio x- 5388
- ▶ EMS Coordinator, Steve Donohue, x-3215



Help us reduce our
environmental footprint!