

A black and white close-up photograph of several interlocking gears. The focus is on the teeth of the gears, showing their intricate, repeating patterns. The lighting creates strong highlights and deep shadows, emphasizing the three-dimensional texture of the metal.

POLLUTION PREVENTION SERVICES

Working together to achieve
economic and environmental results

www.iowap2services.com

Pollution Prevention Services

- Confidential
- Non-regulatory
- No cost



Client Base

- Business & Industry
- Institutions
- Government Agencies
- Toxic Release Inventory Reporters
- RCRA Large Quantity Generators
- Large Energy Users



Services Offered

Assistance focused on our client's needs

- **Opportunity Assessments**

- Focused or walkthrough
- Process

- **Energy**

- Compressor Utilization
- HVAC Efficiency
- Lighting Effectiveness

- **Water**

- Water use
- Wastewater

- **Waste**

- Hazardous waste
- Solid waste

- **Pollution Prevention Intern Program**

- **EMS Assistance**

- **Workshops and Training**



What is Pollution Prevention (P2)?

What is Pollution Prevention?

The reduction or elimination of wastes at the source (source reduction) instead of at the end-of-the pipe or stack.





Pollution Prevention

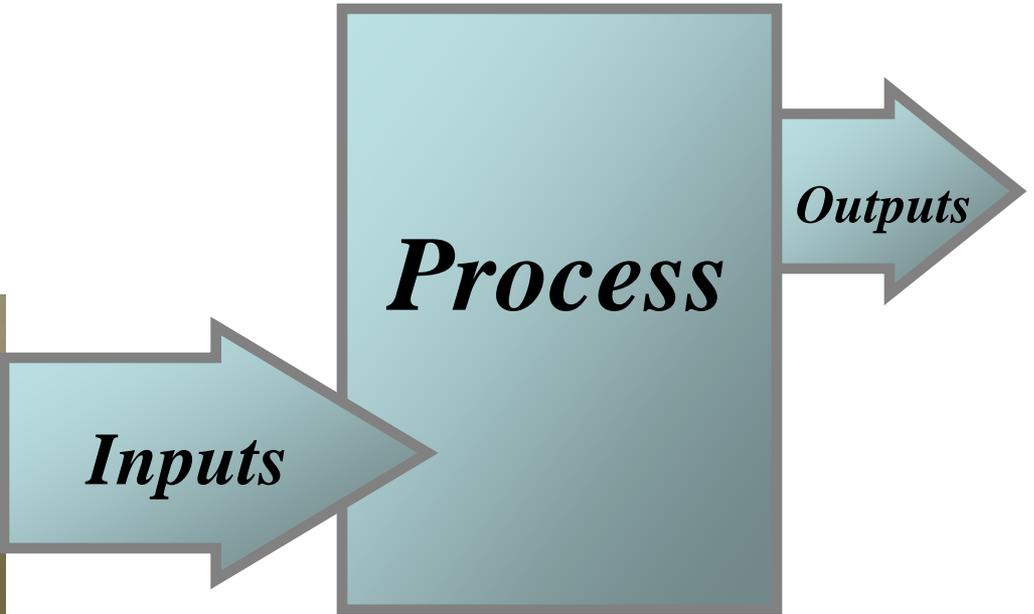
Occurs when:

- resources are utilized more effectively;
- less harmful substances are substituted for hazardous ones; or
- toxic substances are eliminated from production raw materials, water, energy & other processes



P2 Strategies – Input Substitution

Changing a raw material
(input) to
something less toxic.



Mercury elimination



P2 Strategies – Equipment Modifications

An actual change or modification to equipment within a process





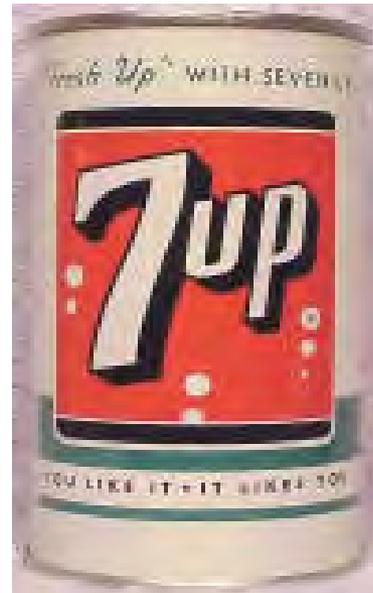
P2 Strategies – Process Modifications

Making a change to
or
replacing a process





P2 Strategies – Product Reformulation



A change or modification
to a product





P2 Strategies – Raw Material Use & Handling

A change to a process
to incorporate recovery
and/or re-use
of a raw material





P2 Strategies – Material Tracking & Inventory Control

A change allowing for tracking of materials and inventory control

(e.g., first-in, first-out)





P2 Strategies – Improved Housekeeping & Maintenance

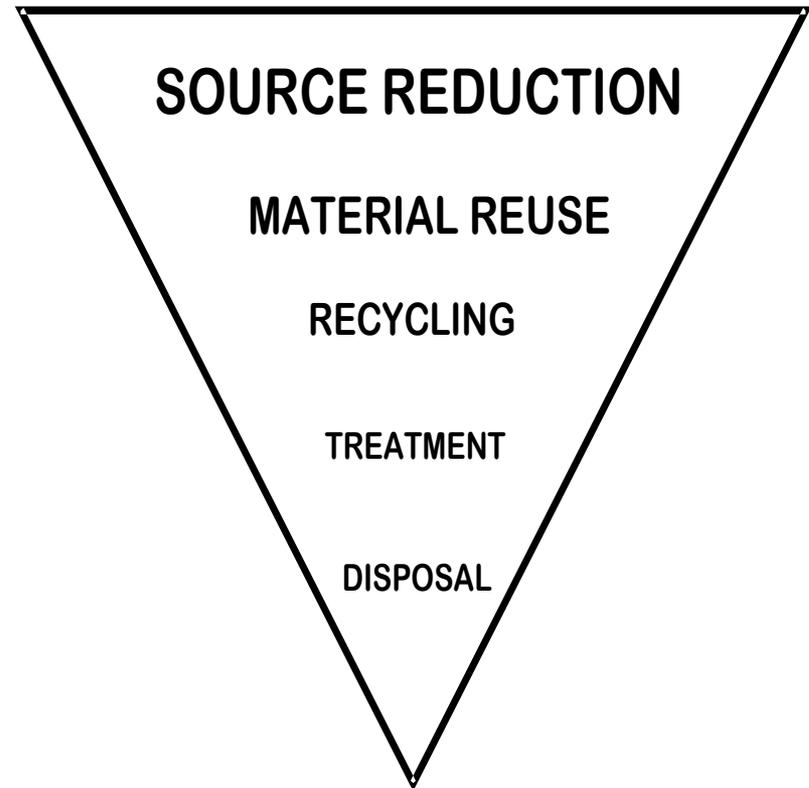
Changes to improve housekeeping and maintenance





Waste Reduction Hierarchy

Source Reduction or P2 is the most preferred strategy for reducing waste, above all others



Benefits of Pollution Prevention

- Reduces liabilities and risks – disposal and workforce
- Reduces costs
- Assists in meeting environmental regulatory requirements
- Environmental improvement also means *financial savings*
- Improved image

Areas of Opportunity - Energy

- **Challenges and Considerations**
 - Unique demands and operating parameters
 - Understanding utility billing structure
 - System analyses = time challenge
 - Upfront capital costs

- **Opportunities**
 - Heating and cooling, and associated controls
 - Boilers and steam distribution
 - Compressed air usage
 - Lighting upgrades and controls

P2 Profile

Company: Mercy Medical Center

- Des Moines, IA
- Project focus:
 - Free cooling
 - Energy reduction and conservation
- Identified and implemented savings:
 - P&F heat exchanger for free cooling
 - AHU scheduling & controls
 - Steam system upgrades
 - Water system upgrades



Total Savings: \$255,994

Implemented:

\$0

In Process/Pending:

\$255,994

P2 Profile

Company: Nebraska Medical Center

- Omaha, NE
- Project focus:
 - Energy reduction and efficiency
 - Heating and cooling
- Identified opportunities:
 - Heat recovery chillers
 - HVAC controls
 - AHU retrofit/replacement
 - Lighting upgrades and controls
 - Computer power management



Total Savings: \$924,838	

<i>Implemented:</i>	\$760,517
<i>Recommended:</i>	\$164,321

P2 Profile

Company: Grundy County Memorial Hospital

- Grundy Center, IA
- Project focus:
 - Boiler efficiency
 - Steam assessment
 - Insulation
- Identified opportunities:
 - Optimize boiler usage to pressure needs
 - Warm air for boiler intake
 - Air-fuel ratio adjustment
 - Steam traps and leaks
 - Pipe insulation



Total Savings: \$55,044

Implemented:

\$4,600

Recommended:

\$50,444

Areas of Opportunity - Water

- **Challenges and Considerations**
 - An inexpensive utility
 - Can be seen as low priority
 - Understanding true costs

- **Opportunities**
 - Boiler / steam systems
 - Cooling tower assessment
 - Irrigation
 - Low-flow equipment
 - Reuse opportunities

P2 Profile

Company: UnityPoint – Des Moines

- Des Moines, IA
- Project focus:
 - Water profile
 - Water conservation opportunities
- Identified opportunities:
 - Irrigation efficiencies
 - System upgrades
 - Lake water use
 - RO system for boiler feed water
 - Showerhead retrofits



Total Savings: \$51,777

Implemented:

\$26,028

Recommended:

\$25,749

Areas of Opportunity – Solid Waste

- **Challenges and Considerations**
 - Wide diversity of materials
 - Availability of and access to markets
 - Collection costs vs. actual diversion
 - Space constraints
 - Employee education and participation
 - Visitor education and participation
- **Opportunities**
 - Recycling programs
 - Green purchasing
 - Reuse / source reduction opportunities

P2 Profile

Company: Mercy Medical Center

- Des Moines, IA
- Project focus:
 - Solid waste
 - Waste reduction
 - Process efficiencies
- Identified opportunities:
 - Single stream recycling
 - OR blue wrap reduction
 - Improved document destruction program
 - Styrofoam reduction / recycling
 - Warehouse cardboard recycling



Total Savings: \$164,900

<i>Implemented:</i>	\$148,300
<i>Recommended:</i>	\$16,600

P2 Profile

Company: UnityPoint Health – Des Moines

- Des Moines, IA
- Project focus:
 - Organic waste
 - Solid waste
 - Process efficiencies
- Identified opportunities:
 - Food waste composting
 - Single stream recycling
 - Confidential paper program efficiencies
 - Compactor monitors



Total Savings: \$45,444

Implemented:

\$45,444

Recommended:

\$0

P2 Profile

Company: Winnebago Industries

- Forest City, IA
- Project focus:
 - Recycling improvements
 - New diversion
 - Efficiency gains
- Identified opportunities:
 - Acrylic recycling
 - Kraft paper recycling
 - Consolidated shipping
 - Recycling of hard-to-manage materials



Total Savings: \$53,727

Implemented: **\$53,727**

Recommended: **\$0**

Areas of Opportunity – Haz Waste

- **Challenges and Considerations**
 - WIDE diversity of material streams
 - Lengthy regulatory considerations
 - Confusion on segregation rules
 - Employee education and participation

- **Opportunities**
 - Medical waste (“red bag”)
 - Hazardous waste
 - Pharmaceutical waste
 - Ongoing education programs

P2 Profile

Company: Allen Memorial Hospital

- Waterloo, IA
- Project focus:
 - Red bag waste reduction
 - Waste assessment
 - Environmental impact reduction
- Identified opportunities:
 - Biohazard waste reduction implementation
 - Solvent recycling
 - Lighting upgrades



Total Savings: \$52,370

Implemented: **\$46,072**

Recommended: **\$6,298**

P2 Profile

Company: UnityPoint – Des Moines

- Des Moines, IA
- Project focus:
 - Pharmaceutical waste optimization
- Identified opportunities:
 - Education campaign and materials update
 - Liners for pharmaceutical waste containers
 - Pyxis drug relocation
 - Aerosol recycling
 - PVC-free IV bags



Total Savings: \$58,163

Implemented:

\$14,536

Recommended:

\$43,627

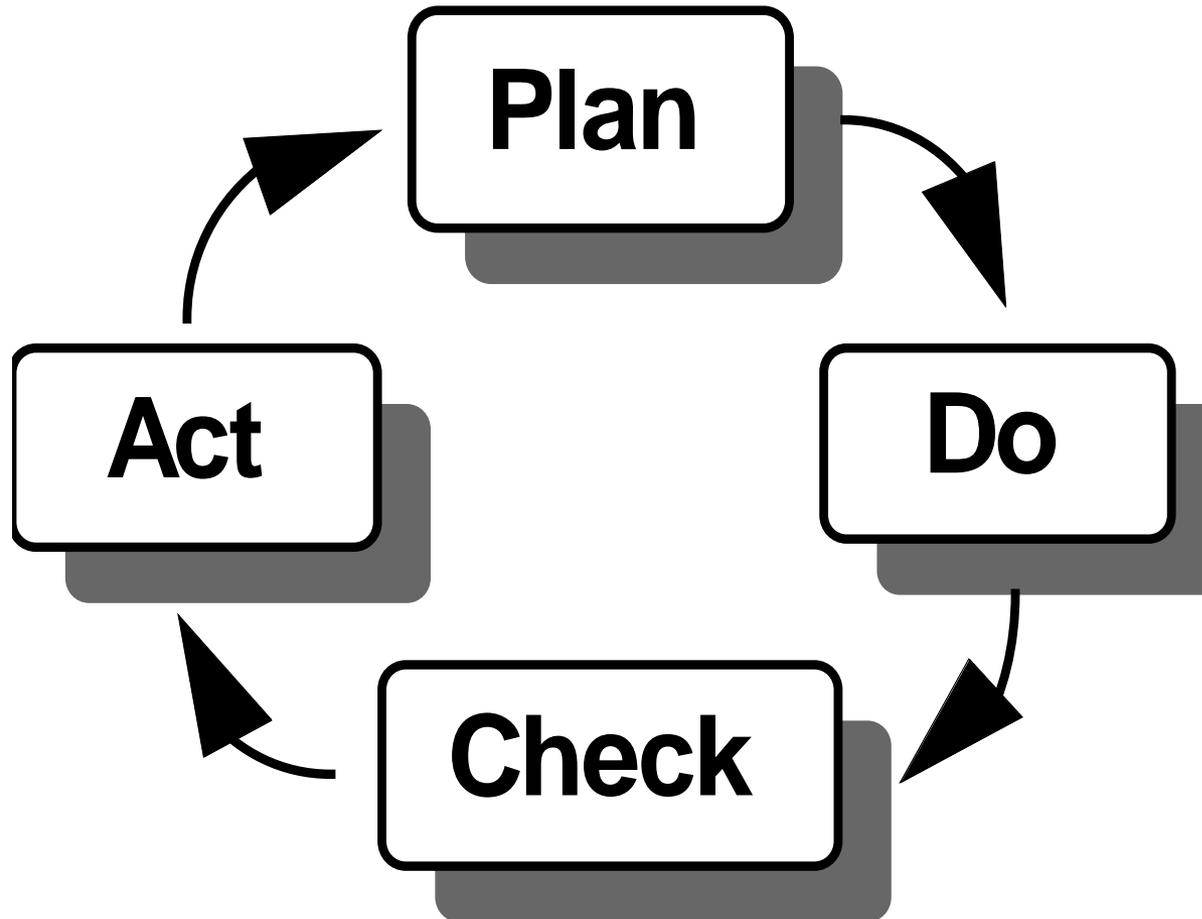
What is an Environmental Management System?



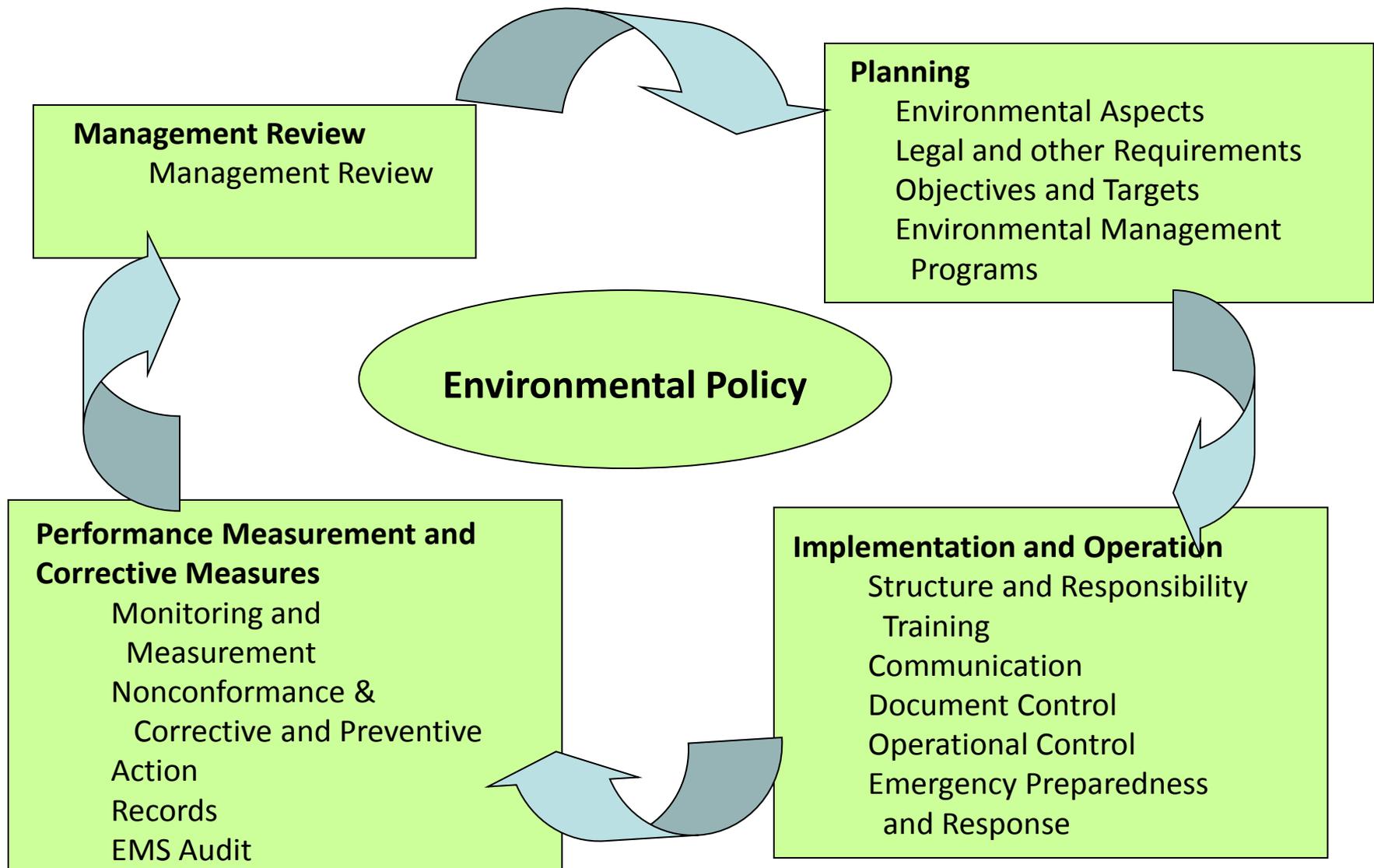
What is an Environmental Management System?

- A business system applied to the environmental impacts of an organization
- International Organization for Standardization (ISO) 14000 EMS - adopted in 1996. Revised in 2004.
- Strives for reviewing, analyzing, controlling and reducing impacts.

"Plan, Do, Check, Act" Model



Basic Elements of an EMS





EMS Benefits

- Institutional memory
- Empowers employees
- Reduces liabilities and risks-disposal and workforce
- Reduces costs
- Meet regulatory compliance standards
- Improved image



Resources Available

- Pollution Prevention Services
 - www.iowap2services.com
- Pollution Prevention Intern Program
 - www.iowap2interns.com
- Iowa Waste Exchange
- Solid Waste Alternatives Program (SWAP)
- Practice Greenhealth
 - <https://practicegreenhealth.org/>
- Hospital networks
- Internal Green Teams





Upcoming Calendar

EMS Implementation / Certification Training

- *October 22 – 23, 2013*
- *Interested in EMS or existing EMS*



Fall 2013 SGP Workshop

- *November 13th, 2013*
- *RICE Rule, Boiler MACT, stormwater updates, DNR enforcement overview*

2014 PPIP business application deadline

- *December 1st, 2013*
- *Program staff available for assistance*

Contact

Jennifer Reutzel

Project Engineer

515.281.8878 (office)

515.205.8251 (cell)

jennifer.reutzel@dnr.iowa.gov

Jeff Fiagle

Team Leader

515.281.5353 (office)

jeff.fiagle@dnr.iowa.gov

Iowa Department of Natural Resources

502 E. 9th Street

Des Moines, IA 50319

www.iowap2services.com

www.iowap2interns.com