"But I Already Use an EMS!"

Benefits of Overlaying the ISO-14001 Environmental Management System with your Emergency Management System for Improving Readiness Assurance and Beyond Design Basis Preparedness Activities

2012 Longest Title Competition

- **First Runner Up:** "You Can't Say That: Coordination of Consequence Assessment Information with State Officials for Scenarios Containing Sensitive or Classified Information." *Chuck Rives, Pantex*

- **Honorable Mention:** "Department of Energy, Energy Preparedness and Response under the National Response Framework & National Infrastructure Protection Plan." *Anthony Lucas, DOE HQ*

What is ISO?

International Organization for Standardization

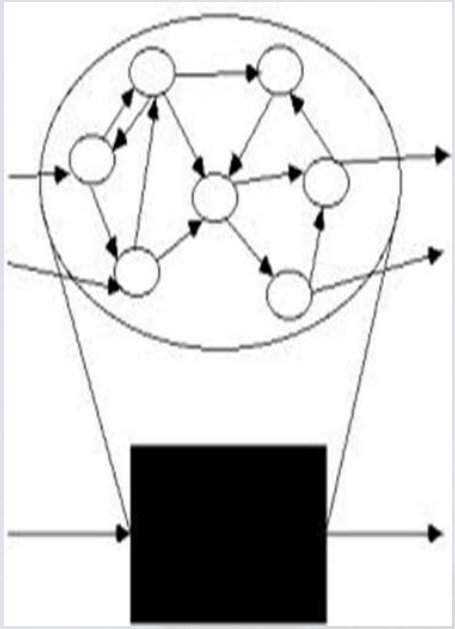
- International Organization for Standardization
  - Standards ensure reliability, compatibility, interoperability, efficiency, and effectiveness
  - Help ensure quality, safety, economy and share best practices
- ISO 14001 – Environmental Management System
  - Specifies a set of requirements for *environmental performance* and provides a framework for a holistic, strategic approach to policy, plans, and actions

A Little History – ISO 14001 and DOE International Cooperation

- In 2004-5, NA-46 (IEMC) delivered ISO 14001 orientation training to counterparts at MIPK Training Center, Moscow
- Approx. 60 participants from across NPP complex
- Carried out in conjunction with ongoing emergency management and risk assessment cooperative activities
- Value of training recognized: several NPPs applied for and achieved ISO 14001 Certification

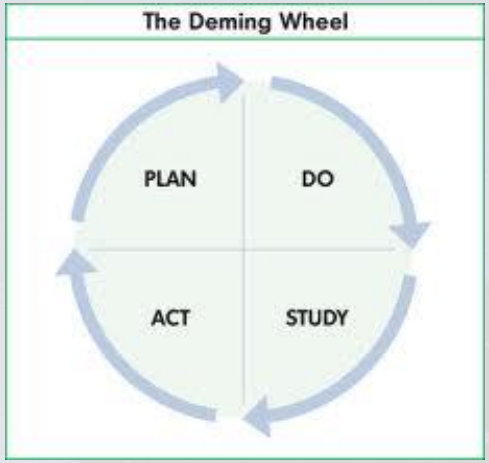
A Few Basic Tenets of the Systems Approach to Problem Solving

- Objects and their attributes within a system are *interdependent*
- Holism – Emergent properties difficult to detect in isolation are often revealed in the relationship of parts to the whole
- Transformation process – inputs/outputs within open/closed systems use energy, material, and information to yield specified goals



DOE O 151.1C – Comprehensive Emergency Management System

- "…establishes policy, assigns roles and responsibilities, and provides the framework for the development, coordination, control, and direction of the DOE Emergency Management System." (DOE G 151.1-1a)
- BOTH EMS are systematic approaches that establish a framework to accomplish objectives



ISO 14001 Macro Goals

- Identify and control the environmental impact of an organization's activities, products or services, and
  - Improve environmental performance continually, and to
  - Implement a systematic approach to setting environmental objectives and targets, to achieving these, and to demonstrating that they have been achieved.

Both EMS Establish Planning Requirements

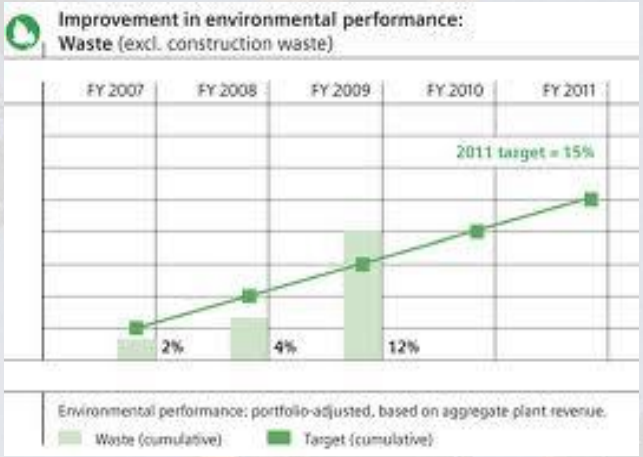
- Whereas DOE's focus is upon emergency preparedness related to hazardous material releases, the ISO 14001 focuses on overall *environmental impact management*
- Emergency management is a subset of ISO 14001 planning
- ISO 14001 begins with identifying *environmental aspects*

Environmental *Aspects*

- A feature or characteristic of an activity, product, or service that affects or can affect the environment
  - Organizations analyze each activity, product, or service to identify environmental impacts (positive or negative)
  - They then prioritize the most significant environmental aspects for their prime focus

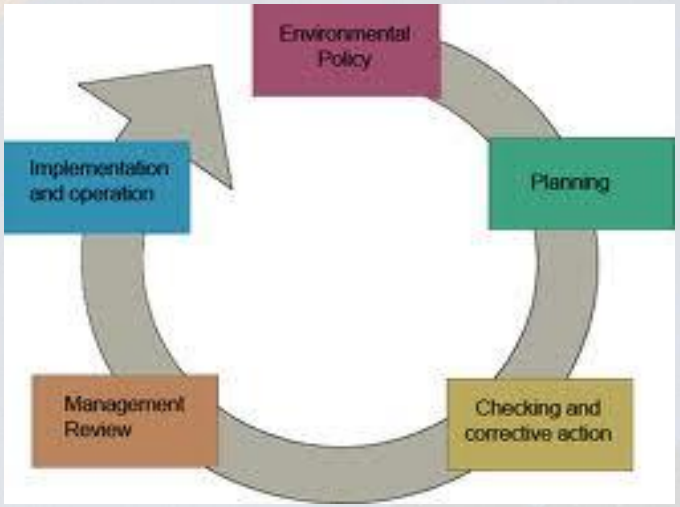
Environmental Objectives and Environmental Performance

- Environmental Objectives are specific, measurable environmental goals, consistent with the organization's established environmental policy
- Environmental Performance is measured in relation to *targets* derived from the environmental objectives within the framework of the Environmental Policy



Implementing ISO 14001 Objectives and Targets

- Create programs to implement environmental policy and achieve environmental objectives and targets that consistently meet regulatory requirements
  - Allocate responsibilities
  - Evaluate the EMS to identify improvements needed and improve overall environmental performance
  - *Audit* established programs to ensure ISO 14001 compliance and ensure continual improvements are made



Preventive Action within an ISO 14001 EMS

- Steps taken to remove the causes of *potential* nonconformities
  - Preventive action can be thought of as a risk analysis process; outputs may include:
    - Reduce or eliminate pollution at the source
    - Efficient use of resources, material, and energy
    - Reuse, recovery, and recycling of resources
    - Redesign of processes, products, and services
    - Substitution of process components for those with more desirable aspects

ISO 14001 Implementation Case Study – Delphi Saginaw

- Initiated “energy walks” during shutdown periods, such as weekends and holidays
  - Team looked for air leaks or other ways to reduce energy consumption
  - Team produced an energy audit report to identify corrective actions to improve controls
  - On one energy walk Delphi team discovered water use issue

Case Study – Delphi Saginaw (Cont.)

- Three inch main was running nonstop, even during off hours
  - Employees did not shut down mains as cost of water was considered too negligible to impact cost or other risk factors
  - Analysis showed water ended up in batch tank for treatment, regardless of whether it was mixed with coolant or was clean
  - Failing to shut off water mains was costing Delphi an additional 40 per cent in water treatment costs

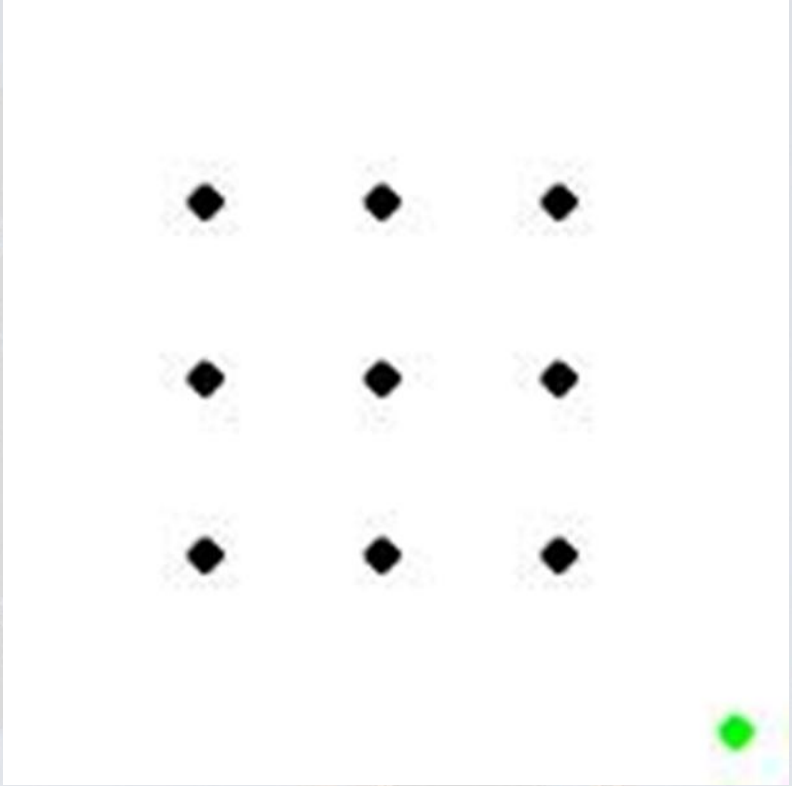
Case Study: GM Flint Metal Center – Managing Waste Streams

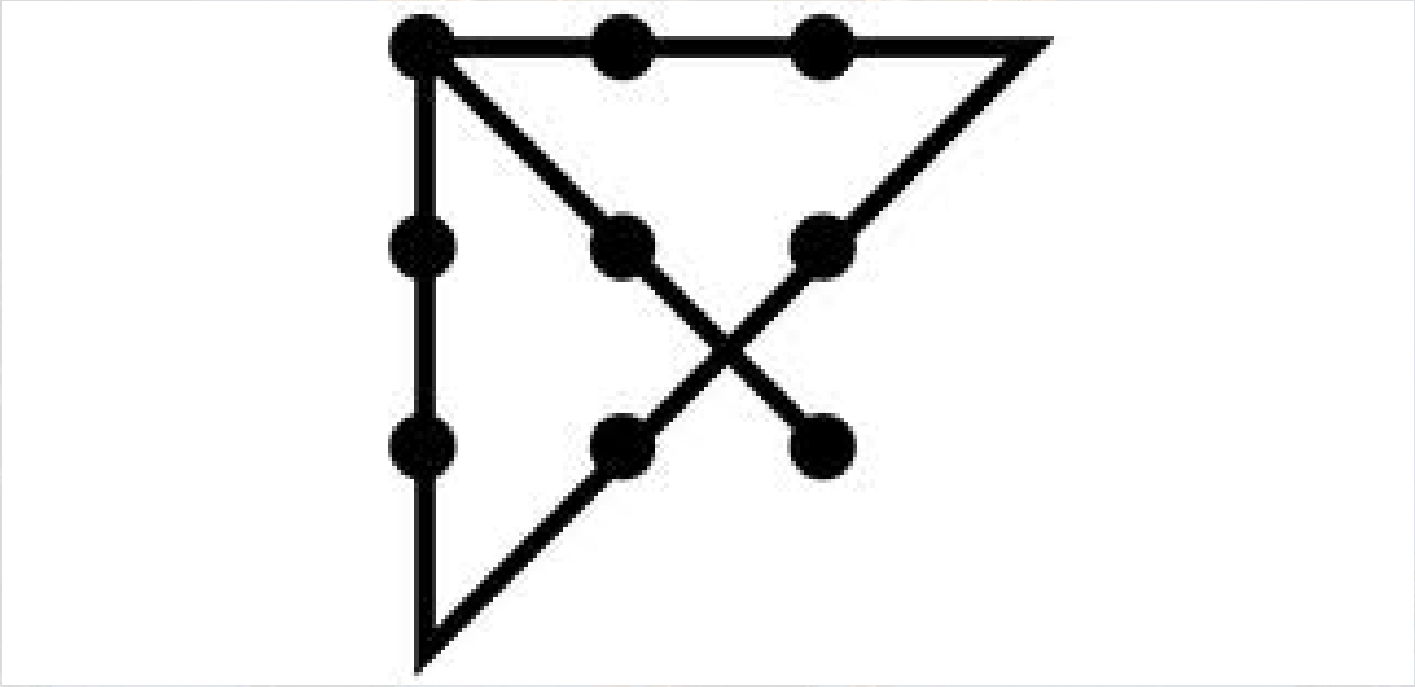
- Prior to ISO-14001 registration, GM shipped waste wood as trash to a landfill
  - GM found a client that burns waste wood as a heat source, and now sells it to them
- Copper welding tips must be replaced after a certain number of uses
  - GM used to combine this copper with other metal pieces and sell them as scrap
  - GM began targeted collections and segregates copper for its higher scrap value

Challenge of BDBE Preparedness

- In a nutshell: how do we think "***outside the box***"

The “Nine Dot Puzzle”





Examples of Approaches for BDBE/Severe Event Reviews

- Evaluate facility DSA using guidance and lines of inquiry
- Perform facility field walkdowns to supplement DSA evaluations
- Analyze current models for emergency management using lines of inquiry
- Integrated analysis results into plans and programs and test them in exercises

How Can We Use Concepts from ISO-14001 to Help?

- Take a comprehensive **inventory**
  - Systems approach means no process exists in a vacuum
  - "Clean sheet of paper" - what has been missed in existing analysis and action plans
- Literally everything has some environmental impact
  - What are the major impacts of any given process
  - How do the parts relate to the whole?
  - Where are the potential issues?
  - Which ones are the most serious?

Concepts that May Help (Cont.)

- Identify the Issues
  - Determine whether a regular or typical solution exists
  - If not, map out **everything** that goes into creating the issue. Include everything possible
- Identify the *assumptions*
  - The difficult part about challenging assumptions is ***identifying*** them
- Find new ways to address the issue
  - Never dismiss a possible solution on the basis, "it simply cannot be done." Consider everything.

In Conclusion

- ISO-14001 may provide a valuable systems approach with dividends in all areas of an organization's processes
- The ISO organization, incidentally, is now publishing new Emergency Management ISO standards:
  - ISO 22320 – Societal Security – Emergency Management – Requirements for Incident Response (approved Oct. 2011)
  - ISO 22322 – Societal Security – Emergency Management – Public Warning (under development)
  - ISO 22351 – Societal Security – Emergency Management – Shared Situational Awareness (under development)
  - ISO 22398 – Societal Security – Guideline for Exercises and Testing
  - ISO 22399 – Societal Security – Guideline for Incident Preparedness and Operational Continuity Management

References

- http://www.iso.org/iso/iso_catalogue/management_and_leadership_standards/environmental_management.htm
- http://www.isoxp.com/10Products/ISO14ChkList.aspx
- http://www.praxiom.com/iso-14001-2004.htm